GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.

$1.00 PER YEAR MEDINA, OHIO

VOL. XXVII. DEC. 1, 1899. No. 23.

STRAY STRAWS FROM DR C. C. MILLER

THAT FACE on p. 832 has an honest look; pity to see that pipe sticking in it. A. I. might offer the owner a smoker!

TILIA PETIOLARIS is a new linden about which much is said nowadays in the *British Bee Journal*. It is later than other lindens, prolonging the season two weeks.

A PICTURE of Wm. H. Horstmann's apiary in *American Bee Journal* shows a new feature—beauty and utility combined. The shade-boards are held on the hives by pots of blooming plants. Nice for a city yard.

IN MAKING INCREASE, the first item given, p. 829, is to buy in March a strong colony in a box hive for a dollar. If I could get that far in the plan, I think I shouldn't want to go any farther; all increase would be by further purchases.

S. SIMMINS, editor of *Bee Chat*, is very positive that no queen ever lives over winter a virgin, to be fertilized in the spring. Editor Atchley is positive that such a thing often occurs. Possibly both are right A winter in England is different from a Texas winter of only two months.

SLOWLY UPWARD goes the price of honey. [Yes, but bee keepers must not make a serious mistake and hold their honey until after the holidays. The probabilities are that it will take a slight drop — at least it has always done so, and I see no reason why it should not do so this year.—ED.]

BINNI thinks his sections safe from worms till doomsday when screwed down (p. 828), because he thinks worms are found only in sections that have in them pollen or brood. I don't know about Australia, but in this country I've seen many a worm on sections entirely innocent of pollen or brood.

IN GRAVENHORST'S *Bienenzeitung* it is suggested that, when cross-breeding is supposed to bring good results, it may be that the gain is only on account of bringing in fresh blood, and that the gain would be more permanent if fresh blood were introduced without the crossing.

DON'T THINK for a minute that I ever meant to argue that the Doolittle plan was not better than simply unqueening to rear queens. With the latter plan bees left to themselves will rear as good a queen as the best, and destroy some not so good. With the Doolittle plan, all—or at least more nearly all—will be good.

WHAT is association worth? The answer of a milk-producers' association is: "It is worth 3½ cts. per gallon. We were getting 6½ cts., and now we are getting 10 cents. We were scattered, and they told us what they would give; we became united, and then we told them what our reasonable demands were, and obtained them." It doesn't seem as if association could raise the price of honey 50 per cent; but it isn't easy to show why milk and honey should be so very different. Come on with your dollar, and get into the A. B. K. A.

YOU'VE DONE a good thing in using half-tones to show new supplies. It is a delight to look at such beautiful pictures. [If you could have experimented with Rob and me in trying all the different effects of light and shade, background, etc., you would appreciate the pictures all the more. We took a number of "shots," but discarded them all until we struck a plan whereby we can get brilliant effects. The beauty of a half-tone in any case from a photo is that it shows the real thing itself, without exaggeration. That is the reason why half-tones of buildings and factories must necessarily be truthful.—ED.]

IT'S MURRAY, and not Doolittle, I'm going gunning for now. In that middle picture, p. 837, he makes me hold the hammer in my left hand! Doolittle never did any thing half so bad as that. [Yes, I imagine that Doolittle will turn that gun which he stole from you on Murray also, for he (Murray) has made our Borodino friend hold out his left hand for a "shake." By the by, it is a little funny that you should employ a colored footman to bring in an announcing-card, and yet you yourself be employed in the menial labor of nailing up hives. Murray ought to have made you sitting before a desk with a pen over your ear, dictating at a 40-mile clip to a pretty stenographer.—ED.]

I FELT SWINDLED after looking through those seven pages of pictures, beginning at page 140. Beautiful pictures, to be sure, but I had a right to look for folks, and not a folk to be seen. Say, you didn't take those pictures on Sunday? Now give us some pictures of the folks. [Whom do you mean by "folks"? If you mean the employees, they are inside running the machines. If you mean the members of the Root Co., we hardly know whether we ought to show ourselves in our own journal or not. Perhaps some day we may show four generations of Roots, the oldest of whom is over 87, and the youngest a little over eight years.—ED.]

AFTER SOME DISCUSSION it seems agreed in *Revue Internationale* that, instead of having extracting combs cleaned up by the bees before being put away, they should be left as they come from the extractor, there being no trouble from mold or souring, the bees being more prompt to occupy them the next season. Will the esteemed editor, M. Bertrand, please tell us whether honey in such combs will not granulate sooner than in combs thoroughly cleaned out? [In most localities of the North, that would be just the trouble. Perhaps Coggshall or some of the other extracted-honey men will tell us why they let the bees lick the combs dry before putting them away for winter.—ED.]

WHEN WORMS are found on sections of honey that are sealed up tight immediately upon being taken from the hive, it is said the bees carried the eggs there on their feet. Does that look reasonable? Are the eggs in places where the feet would touch them? Would they stick to the feet? Pull the head off a moth, and almost immediately it begins to feel around with its ovipositor for an angle or a crack, not laying till it finds one. Are not the little worms on the sections first found at an angle? Considering what an artful dodger the moth is, how swift in its movements, and how constantly trying to get into a hive, is it not more reasonable to suppose that it has dodged its way through the hive and made its way into the super?

A BRIGHT IMPROVEMENT is that arrangement by which no water can get through the cracks of the cover unless it runs up hill. Now if the cover will not warp out of level, and if you can get rid of that objectionable projection below the general surface at the ends, tin may not be needed in a cover. There are some bee-keepers who will never be willingly driven to have a cover whose lower surface is not entirely level throughout. [Yes, I believe the new form of cover is better than any thing that has been hitherto brought out, and we can even eliminate the bottom projections under the cleats by using angle irons instead of cleats. This will be making the cover a little more expensive, but really I prefer to have the cleats, for myself, stick downward.—ED.]

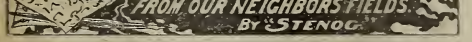
IT IS REFRESHING to have people talk definitely and specifically, as does N. D. West, p. 828. A toothpick will draw out the dead brood ½ to ¾ of an inch, but it will not break and spring back like rubber (in the New York disease). Now tell us just how far it will string out before it breaks in genuine fou brood, and how much more slowly than rubber it springs back. [If you are asking me the question, I think I have seen filaments from foul brood all of 2 inches long, and perhaps in some cases 3 inches. When it breaks it flies back almost like a rubber band; but the diseased matter from so-called foul brood in New York is only very slightly ropy — at least the samples that have been sent here, which I have examined, do not show filaments any thing like those which can be made from the real foul brood.—ED.]

A FOUL BROOD CURE is thus reported by the editor of *Bee Chat:* A badly diseased colony was taken from its stand, a clean hive with frames of foundation put in its place, the queen and a frame of healthy sealed brood given, and the returning bees built it up into a good colony which remained healthy. The old stock had no laying queen for three weeks, and had only young bees, and these cleaned up every thing so there was no more disease. But the colony in the first place was not badly depopulated with disease, the time was favorable for swarming and storing, no bees were shaken from the combs, and *only young bees* left in the old hive. N. D. West's views, p. 828, coincide with these closely. [There is no reason why it should not work, as it is almost what is called the starvation plan of cure.—ED.]

EDITOR SIMMINS is somewhat radical if not revolutionary in his views on foul brood. He says a bee flying from a foul-broody colony never carries the disease to another colony, except under the conditions of natural swarming (filled with honey?). (It may be remarked in passing that this agrees with Baldridge's plan of cure). Mr. S. made two colonies exchange places *without smoking or frightening the bees.* One was not strong but healthy, the other strong and badly diseased. The weaker colony received most of the workers of the other colony, but remained healthy. [I feel very positive that Editor Simmins is wrong; for every colony facing in the same direction, and adjacent to another colony having foul brood, is sure to have this disease sooner or later, for the simple reason that young bees get mixed up more or less at the entrances, and go into the wrong hive. The transmission of the disease in this way occurred over and over again at our apiary outside of the swarming season; and if I am positive of any thing, I am positive that the disease *is* carried by the bees from one hive to another, whether the honey-sacs are full or not.—ED.]

SOMEWHAT STARTLING it is to find M. Bouvier, editor *Revue Universelle d'Apiculture*, making a strong plea for glucose as food for bees. They take greedily pure glucose (?) but he advises half glucose and half sugar syrup. Each evening, for a month, he fed to each of 26 colonies half a pound of the mixture, and they flourished under the diet. He considers glucose more nearly like the natural food of the bee than sugar which is crystalliz-

able. Are we to reconsider feeding glucose? [A good deal will depend on the grade of glucose used. The ordinary commercial article—that which is used in adulterating honey — is pretty rank stuff ; and while it would be possible, no doubt, to get the bees to take it when mixed half and half with sugar syrup, it would be a gross imposition on them. The ordinary stuff in this country will be almost sure to winter-kill the bees. Any editor of a bee-paper in this country, who would advocate such a doctrine—feeding glucose, even for the purpose of giving it as a feed and nothing else —would subject himself to some pretty strong criticism. I venture the assertion that, if Mr. Bouvier will keep careful account of the cost of the feeding of this mixture, he will find that, dollar for dollar, the sugar syrup, pure and simple, will be just as cheap as the adulterated stuff; that is to say, I mean that sugar syrup for bees has, for the same money, as much real food value for bees as any other substitute or mixture costing less. In the same way, it does not pay to feed cheap sorghum syrup or any other cheap molasses in place of granulated-sugar syrup.—ED.]



December! let's now all remember
The work of the fast-going year;
While snow is a-falling and cold is appalling
We'll get for our labors great cheer.

On page 834, just below the middle of the page, occurs "Comb *e*, given July 3." It should be, "given July 4." And first column, 24th line from the bottom, should be "Comb *d* has its first cell," not "Comb *b*."

Mr. Walter T. Swingle, agricultural explorer for the U. S. Department of Agriculture, has, according to the San Francisco *Examiner*, obtained in Siberia a new variety of alfalfa which is capable of sustaining a severe drouth. Some of this has been sent to Paso Robles, where it was grown on soil where no other alfalfa would grow. Owing to this being one of California's most important green feeds, Swingle thought its introduction into the State promised great benefits.

BEE-KEEPERS' REVIEW.

Mr. Hutchinson visited a large number of bee-keepers in Wisconsin last summer, and, with two exceptions, they winter in cellars or special repositories. He gives a beautiful full-page view of one of these cellars. It shows a large mound of earth in the woods, with an opening in the front like a door in an old-fashioned log house. The illustrated feature of the *Review* is almost overshadowing the rest of the journal. Mr. Hutchinson is a fine photographer, and finds his highest joy in pointing his camera. Keep it up, Mr. H.

Dr. Mason favors a shorter spelling, but adds: "If I were to try this new-fangld way I'm sure I'd make a failur of it." He calls it "od." But that spells *oad*. He means *ahd*. On page 335 I see *Trifolium incarnature*. Is that the new way for *incarnatum?*

Mr. Taylor objects somewhat to the way in which GLEANINGS compared the new-process foundation with the old. He says:

> In an article, with illustrations, taken from the *Canadian Bee Journal*, GLEANINGS, 712, attempts a comparison of the readiness with which bees work the new-process and the old-process foundations. The illustrations are somewhat confusing. The labels they contain are abundant, but are made out with some difficulty by poor eyes ; then each of the three illustrations is put upon the page according to a somewhat different plan; and in one case either the label or the explanatory figure below is erroneous. But the chief defect lies in the experiment itself. The "ordinary" foundation with which the comparison is made has no pedigree whatever. The maker is not disclosed; and we have no knowledge of his skill or success in the manufacture of foundation. The new-process foundation may be decidedly preferable to any other made, but it would be ridiculous to claim that the experiment develops any proof of it.

As to the quality of old foundation used, our friends in Canada will have to say as to that; but doubtless it was as good as could be had. The incredulity expressed reminds me of the Congressman who admitted that a certain lot of sheep were sheared on the *near* side, but not necessarily on the other.

AMERICAN BEE JOURNAL.

Under date of Nov. 4 Mr. W. A. Pryal, of San Francisco, Cal., in writing to Mr. York, says:

> "Recently I embraced the opportunity to make a friendly call upon Mr. Thomas G. Newman, and I was surprised to find that he can see with difficulty. He volunteered the statement that his eyesight is getting so bad that he is almost blind. He attributes it to nervousness — he having head-troubles very much. I should say that in this latter affliction he is not altogether unlike father Langstroth. I am very sorry for Mr. Newman's misfortune, and I trust he will soon recover his sight. He states that he hopes to take a vacation soon, and spend some time in the mountains recuperating."

Such an affliction, the worst to which mankind is subject, certainly calls forth our warmest sympathies.

THE AUSTRALASIAN BEE-KEEPER.

The prevailing question in Australia is how to supply the markets of England with honey. One man sent a small lot of comb honey to London with a quantity of extracted in bottles. The comb honey sold at 17 cents per section of one pound, which they regard as a good price, while the honey in bottles was ruined by the fragments of broken glass.

At a meeting of the Hunter's River Bee-keepers' Association it was resolved to get a consignment of 50 to 100 tons of honey for direct shipment to England. It was the opinion of the members that it was useless sending the honey to agents, and take what they thought fit to return for it, but to send home a competent and interested man to sell to the

best advantage, and to arrange for future consignments.

Mr. W. H. Hall says that in his apiary, when the maize (corn) crops and the red bloodwood are in bloom at the same time, certain stocks can be relied on to fill their hives with the pale, mild, sweet maize honey, and others with the rich yellow glutinous honey of the bloodwood; and in this case it is remarkable that even the wax secreted by the bees after eating the two types of honey will be different. The new comb wax from the colony working on maize will be pure white, and crumbly to the touch; while the wax in the hive working on bloodwood will be a bright yellow, and tougher in texture.

BRITISH BEE JOURNAL.

On page 390, Oct. 5, the theory was advanced that bees do not naturally build a cell six-sided, but that the shape is due to the crystallizing of the wax when it becomes cool. Mr. Cowan replies, and shows up the other fallacy of that idea. His strong point is that bees could not endure a temperature high enough to admit of crystallization. Mr. Cowan seems to admit, however, that the form of a cell is due to outside interference, as all circles coming together naturally assume a hexagonal form. Mr. Cowan's closing paragraph is as follows: "In one respect the experiments of Messrs. Dawson and Woodhead are interesting to the bee-keeper, inasmuch as they demonstrate that, however faint may be the hexagonal impression upon the plate of wax, the bees are willing and ready to accept it as a guide for the commencement of their cells. We might also incidentally point out that even the hexagonal shape is not necessary, as bees will readily accept simple circular pits in wax sheets if they are the right distance apart, and will construct their combs upon them."

GENERAL CORRESPONDENCE

HONEY-DEW.

Something about a New Kind.

BY F. GREINER.

About a week ago it looked very much as though our bees would go into winter very light in honey, and that we should have to do some feeding; but, curious as it may seem at this time of the year, I find myself giving my bees this 1st of September more room in shape of extracting-combs, and adding half-stories filled with wired foundation. We are having a great flow from honey-dew, and I thought it was a good opportunity to get a lot of foundation drawn out into combs—an opportunity I did not find in all the now nearly past season. As honey-dew honey is not fit for table use it would not be advisable to have it stored in sections; so I have taken nearly all the section supers off, and intend to keep the bees busy as stated.

This is the second time in over 25 years that we here have an abundance of honey-dew, appearing principally on the chestnut-trees, and our bees are now not slow gathering it, especially early in the morning. While writing this it is not quite light yet; but the bees

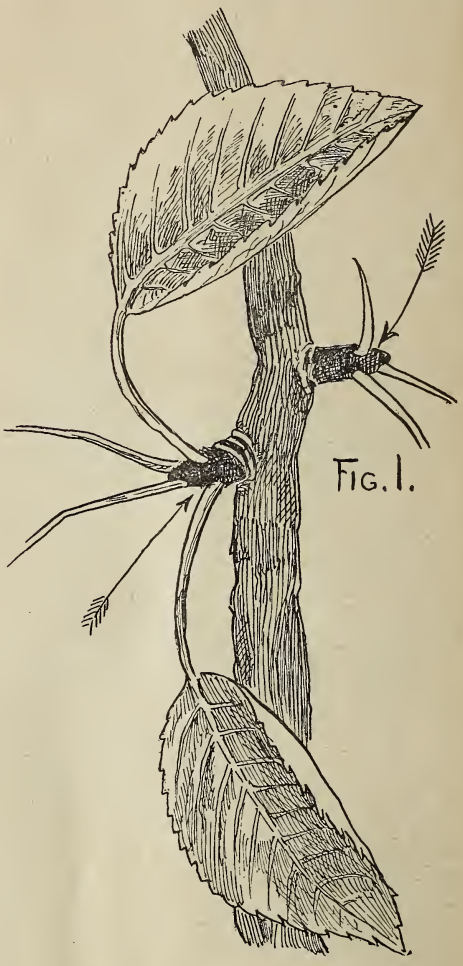


FIG. 1.

are already fairly roaring over it, reminding one of the times when we had a good basswood-honey flow. There are great numbers of aphides on the twigs and leaves of the chestnut-trees, and, according to the authorities, they are the producers of the saccharine matter.

There is also honey-dew to be found on pear-trees, and in considerable quantities, which, to my taste, is of better quality than the other, although our bees do not work on it as briskly as they do on the other, for some unexplainable reason, and much of it goes to waste.

While I believe the aphides are the origin

of the honey-dew on the chestnut, oak, and hickory, it would seem to me that, in case of the pear-trees, it must be of a different nature. In the first-named case the leaves of the trees, and sometimes the blades of grass and the stones under them also, appear to be varnished all over with the sticky substance; in the other case the honey-dew is found most plentifully where the stems of the leaves join the stock, as shown in my drawing, Fig. 1, and indicated by the points of the arrows.

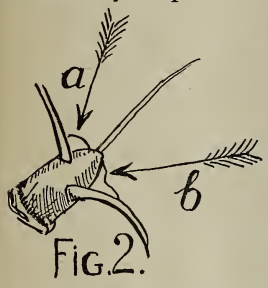


Fig. 2.

After all, if this kind of honey-dew were an exudation of the plant or tree it would stand out in regular drops, convex at the points of exudation, as indicated in Fig. 2 *a*, but in reality we find it as in *b*. Single drops, all flattened out, of course, may also be seen on the leaves here and there. Aphides are absent—at least I did not discover any while picking my Bartletts. However, there are some other little insects present, yet not in such countless numbers as we see the plant-lice. They actually wallow in the sweet fluid. Aphides never do this. I attempt to give a picture of two of the insects as found on a leaf, considerably magnified in Fig. 3. The dotted line around one of them indicates the splash or flattened drop of honey on the leaf. What the little fellow, hardly a sixteenth of an inch long, is doing, or what he is there for, I do not know. I wish some bug-professor (I should say entomologist) would enlighten me.


Fig. 3.

Honey-dew is rather unreliable winter food for bees, to judge from experience. Colonies provisioned with such are not in good condition to be taken into cellars, unless they are taken out several times during the winter, and given flights, and then the result might be questionable.

Should the winter turn out to be a mild one, or should there be a number of warm days or spells at intervals of three or four weeks, every thing will probably work well with outdoor-wintered stock, for I do believe that, aside from the food question, our bees will be in excellent condition. They will start into winter with many young bees, breeding having been kept up to a later date than usual.

But we do not know, and have no means of knowing, what the coming winter may have in store for us; and to speculate on an uncommonly favorable time would be too hazardous, to say the least. Of course, it will involve a great deal of labor and expense to put our bees on a safer basis for wintering; but I believe it will be wise to make the effort. The larger part of my bees will be "fixed up." Fortunately a large share of my colonies are each in two half-story brood-chambers, and with them it will not be so difficult to improve their condition. As soon as our honey-dew flow ceases, and the largest part of the brood has hatched from the combs, I contemplate removing all the upper half-stories. They contain most of the honey, the lower half-stories almost none. That will give me a good opportunity then to give my bees good wholesome food in the shape of granulated-sugar syrup, of which a sufficient quantity will be fed at once. It may become necessary to place an extra empty brood-chamber under each hive to give enough room. A full colony will winter on the eight half-story frames just as well in the cellar as though they had more comb surface to cluster on; and the heavy combs taken from them will keep better in the honey-house than they would in the cellar. When the colonies are returned to their summer stands in the spring, each may then receive the same half-story full of honey that was taken from them, and so the stored bug-juice can be made to answer the most excellent purpose of growing us the bees for the white-honey harvest if it should come.

How I shall treat the colonies that are on full-sized frames I have not quite decided upon, but I shall probably remove some of the heaviest combs and feed syrup. I entertain the hope that by feeding late, after the brood has hatched, the bees will store the syrup most convenient for them, and will also consume it first. If they will do that, then there will be a good reason to expect that they will come out in spring all right.

The winter following the honey-dew year (it must be some seven or eight years ago) was a very open one, giving our bees many opportunities to fly. All our outdoor-wintered colonies came through in the very best condition. Those of the cellar-wintered, that were set out in February, were all right; those brought out later were proportionately worse off, as they had been kept longer in the cellar.

From these facts the reader can draw the lesson, for I am sure the honey-dew of this year is of the same character as that of the other year spoken of, and will, no doubt, act on the bees the same way.

Naples, N. Y., Sept. 1.

[I hope Prof. Cook, if he sees this, will tell us about this new kind of honey-dew—the

kind Mr. Greiner finds on the pear-trees. Prof. Cook is our best authority on honey-dew in the United States, and possibly in the world, and I know we shall await with interest his comment on this.—ED.]

A HIVE OF BEES AS A SCHOOLROOM TEXT-BOOK.

Some of the Interesting Lessons that may be Learned; the Piping and Quahking of Queens; do Bees Sleep? how to Make a Little Observatory Hive without a Box.

BY PROF. C. F. HODGE.

Stop and think for a moment what the world really is, and for what purpose we are in it. At bottom, nature is a vast system of tremendous forces at work night and day; and from the word go, in the first chapter of Genesis, man has been set the delightful, interesting, and inspiring task of learning to control all these forces to produce the greatest possible good for the greatest number. Stop and think again how much of the veritable reality of this great plan of nature, and how much of the fundamental purpose of human life, becomes an actual part of our great public-school system. We scoff at "book larnin'," and clearly recognize that learning to repeat words from books can never make men who are able to do any thing worth while in the world. Then stop and think once more: "How much besides book learning do we have in our schools?"

Our great hope of escape from this bookish talkey-talkey farce of an education lies in the line of modern nature study. Here we may have children learning things instead of words, and things that are worth their while. But, to the point. Let us first consider ways of managing bees in a schoolroom, and then we may indicate a few of the important lessons which they may be used to teach.

I have tried the ordinary observation hives, both single-frame and full-stand, such as are used at fairs and exhibitions, and also a honey-section covered with a glass box, and a glass hive specially made for the purpose, which I will describe later.

For an entire season I had a honey-section hive in my study-window, and the whole time it was the most fascinating thing in the room. It was made from an ordinary pound section by driving brads into the corners, letting them stick out half an inch at the bottom for it to stand on, and ¼ inch from the sides and top to insure a bee-space all around. The glass case that fitted over it was made simply by cutting glass the proper size, gluing the corners together with narrow strips of cotton cloth, and carefully searing hot beeswax into the corners on the inside to prevent the moisture of the bees from softening the glue. To stock it I put in a handful of bees with an old queen which I wished to supersede. She laid the little hive full of eggs, and then decamped. The bees immediately set to work making queen-cells; and, happening to be cutting out a lot, I put in two large queen-cells—one of them, with malice aforethought, protected with screen wire.

The queen from the unprotected cell emerged first, and then I had the whole story of "piping" and "quahking" where every movement could be easily observed. At noon of the second day after piping began, the hive cast a swarm, which clustered about the size of a spool of thread, in the snowball bush in front of the window. I hived it back, removing the offending quahker, and the young queen stayed, and laid, and kept up the hive until cold weather. I saw her take her nuptial flight. She was gone about ten minutes, and returned with the organs of the drone. Within fifteen minutes after the bees had removed these she flew again, and in five minutes returned with a second trophy of success. Almost any day I could see a little bee emerge and make its first toilet—a most fascinating performance, and at all times I could observe the bringing-in and disposal of honey and pollen. I painted bees with different colors, and watched them work from daylight to dark—that is, I watched them from daylight to dark; but no single bee that I watched ever worked more than three and a half hours a day. Then there were all the different divisions of labor—the field-bees, the nurse-bees, the wax-producers, the police, the barbers, the drones, and the queen.

I mention all these things to show how many interesting points in the natural history of the hive can be intelligently observed and studied in so small a device—an old honey-section, a handful of bees, a discarded queen-cell, and a few scraps of broken glass, all of which need not cost a penny. And I will guarantee that it will be worth more to a room-ful of children than $10.00 worth of books about natural history; but, of course, we need some books as well. And with all that has been written, not half the whole story of the hive has ever been told.

The next season I had in my window the little hive again, and a hive made to take one of my regular frames. The glass case for this was made in the same way, except that the front glass was left out; i. e., the sides, top, and back were glass, fastened together with glue and narrow strips of cloth. This fitted into grooves cut in the bottom-board and in front into the front board, an upright post very securely fastened to the bottom-board. The entrance-hole was made in the bottom of this front board. Sharpened wire nails with the heads cut off, and filed to a sharp edge, driven into the bottom and front boards held the single frame securely in position independently of any support from the glass. Both these hives were covered with thick cotton quilts made with soft black woolen cloth. This hive is naturally more satisfactory in many ways than the little one, since we can observe things on a much larger scale. We need never wait ten minutes to see a young bee gnawing her way out. We may observe a great many more workers about their different vocations, and the queen can very generally be found laying. Still, this outfit will cost,

at the lowest estimate, from $1.00 to $2.00. Yet a man who had an apiary, or one of the boys in his family, could put such an outfit into a school for a few weeks at a cost scarcely exceeding temporary use of the glass and bees.

Of course, the best thing of all is a full stand, and a booming large one, in an attractive and safe glass hive. With this the boys and girls may actually see and study practically the whole theory and practice of apiculture, from noting the flowers which bees visit, with the hive-products derived from each, to sampling the honey of all the different grades, and making at least the chewing test for pure beeswax.

As already stated, I have used a number of different observation hives—in all, three different styles. I will stop to describe only the one which I have found best, and on just this point suggestions from any one who has been working along this line will be most gratefully received.

The hive is made of glass sides, ends, and top, which is removable, set in a frame of inch pine. The strips that go across for the top of the ends and the bottom end strip in front are one inch by two inches at the top, to allow for rabbeting down for the frame supports 1½ in., the bottom for a ⅜ entrance. All around the inside, the frames are rabbeted in ¼ inch by the thickness of the glass. This gives us a plain glass box all smooth on the inside. This is screwed to a bottom-board, into which beeswax has been thoroughly ironed in on both sides. The bottom-board is made of inch pine, and extends a foot in front of the hive, and through this extension it is screwed to the window-sill. This space between hive and window is covered in by a screen wire tunnel about 10 inches wide and 1½ deep, and forms the most fascinating place to watch the outgoing and incoming streams of busy life, the different-colored pollens, the loads of propolis and nectar, the carrying out of the dead, the most interesting "policing" of the entrance, the actions of sneaks and robbers, the reception of a strange bee, or one that has been perfumed in various ways. This space should be provided with sliding doors, one of perforated tin to close the hive and one of tin to close the opening through the board that fits under the window-sash. This is to make it possible to confine a bee for a moment while it is being marked. For marking I have tried a number of devices, but have settled down on ordinary water-colors as the best and simplest way, and I use a fine brush that can be passed through the wire screen. It would be a desideratum, both for purposes of observation and ease in marking, if we could have a fine black wire screen with meshes as large as possible, but just small enough to prevent a bee from getting through, i. e., larger-meshed than the common fly-screen.

In marking bees I get a good dab of any desired color, on the back, between the wings; another on the back of the abdomen, and, most important of all, a good mark on the very tip of the abdomen. Until I discovered the importance of this latter mark I used to lose my marked bees for hours at a time, even in a single-frame hive. I finally caught one crawling into a cell, and watched her remain there lying quietly on her back for nearly five hours —resting or asleep?

The supers are made with glass sides, glass set in narrow wood frames and wooden ends, and the glass frame for the top of the hive exactly fits over a super. The whole hive is covered with thick soft quilting, made in rectangular pieces to fit both ends and one side, the other side being covered with a long quilt which laps over the top, and is long enough to cover three supers in position. The advantage of this mode of covering is that it can always be removed without a jar or creak, leaving the bees so completely undisturbed that I have not seen any tendency on their part to propolize the inside of the glass. It is very easily manipulated, and keeps the bees warm. For winter, in a room that is not heated, I have simply to throw over a few newspapers and large sheets of wrapping-paper, and tie down closely with cord. As I have all my hives under cover, I now propose making them all on this plan; but if any one can suggest improvements I wish he would do so before I get them all made. Materials for hive cost about $2.00, and the bees from $3.00 to $8.00, according to quality, size of swarm, and local prices. Still, it might be run to pay in honey and bees from one to two hundred per cent annually. A start might even be made with little or no expense to the school authorities, if some one who has bees would arrange the observation hive and manage one of his swarms, as suggested, either in the window of a schoolroom or elsewhere, where the classes could have free access to it. In fact, a bright boy I know of, who became interested in bees in the way suggested, while in the grammar school, bought a swarm with his own money, and has recently volunteered to place one of his swarms in a glass hive which he made himself, at the disposal of his classmates, now in the high school.

I have used the honey-bee thus in a large grammar school, the hive being located in an attic window; and during two seasons at the Clark University Summer School, and wherever introduced, it has proved one of the most, if not the most, fascinating part of a nature-study course. I should rather use pictures than a few dead bees, queen, drone, worker, etc , mounted in a glass case, with a little comb and all that; but when it comes to seeing things alive and humming, with all the bustle and hustle and go of an actual bee-hive, interest is unflagging and keen to the last. A number of the teachers have taken the suggestion home to their own schools.

Of course, the honey-bee forms a small but very important part of a nature-study course. Altogether the most important part of elementary botany, after the planting of seeds and rearing of plants, is cross-pollination of flowers, and, chiefly, how this is accomplished by insects. It is a wonderful coincidence that, among the million or more insect species, this one, so useful and beneficent, should be practically all-sufficient for this important func-

tion in nature. In a town or city, where each house has its garden and fruit-trees, I consider that one who keeps a few swarms of bees is a public benefactor, helping to supply his neighbors for a mile or more around with more and better fruit than they would otherwise receive. The class could easily test this by screening branches of apple, cherry, plum, and pear, before the blossoms open, and then counting blossoms and the fruits that set and mature, comparing these branches with others that were exposed to bees. Flowers and the production of seeds could be studied in the same way. Honey-trees and honey-plants should then receive some attention, and problems of planting parks and shade-trees with some reasonable consideration for the needs of our helpful and fascinating little friends.

In this section it is sometimes said that the basswood can not be planted to advantage on account of borers, and the same is generally true of the honey-locust. This is because our woodpeckers especially, other birds as well, have been so neglected or killed off. Our interest in bees and honey by the natural and important interrelations of all the different parts in the great scheme of living nature extends to an interest in certain injurious insects in tree, flower, and fruit culture, and in birds. This is but one example among many of irradiation of interest when we have really developed a warm focus of interest in some particular thing.

As a result which may appeal to bee-keepers especially, we ought to have generally disseminated an intelligent knowledge of the wholesomeness of pure honey, which would increase its consumption in this country tenfold. I think the honey-bee is soon to be given a trial at teaching practically applied industry, intelligence, and thrift in our public schools. At the outset we should like to hear all the possible pros and cons that practical bee-men have to offer; and we should be especially grateful for suggestions as to the best hives and apparatus for demonstrating the life of the hive.

Clark University, Worcester, Mass.
Sept. 12, 1899.

[In one place in the article above, Prof. Hodge speaks of seeing a bee go into a cell and stay there five hours, apparently sleeping. We often say that bees work for nothing and board themselves—work all day and sleep all night too. We have come to learn that the mammals require seasons of rest, and why should not insects also require it?—ED.]

HOW QUEENS ARE PROBABLY OFTEN LOST.

How this Loss may be Avoided; Importance of Numbering Hives.

BY WM. MUTH-RASMUSSEN.

Although I never have any brood in my sections, it is no rare occurrence to find a queen among them. What she is doing in the super when there is not an empty cell available for her, is one of the "mysteries of bee-keeping" that perhaps may never be explained. I am, however, always watching for queens when I take honey off. I use a slatted honey-board between the brood-chamber and the super, and wide frames to hold the sections.

By the way, while I have seen both section-holders and other contrivances for holding sections, I have never thought well enough of them to abandon the wide frame; and I have heard many say that, for keeping the sections clean, it is superior to any other arrangement. A. I. R., why didn't you leave well enough alone? I use the Porter bee escape, putting it under the super in the afternoon as late as possible, and take the super off the following morning. The escape works all right, with two exceptions. During very warm nights the bees seem loath to go below; and if the queen is in the super, many bees will remain with her. If I find a number of bees among the sections, and especially if these bees seem inclined to show fight, I invariably expect to find a queen there. In such case I have found it prudent to smoke the bees a little in order to subdue their vindictiveness for the time being.

Now, as the loss of a queen may result in the loss of a good deal of honey, and perhaps the loss of a whole colony, I find it expedient to prevent this by a very little extra trouble. All my hives are numbered, both on front and back, so that I do not need to walk around a hive to ascertain its number. On the back of each super is tacked a piece of section. On this I write the number of the hive when I take the super off. As the supers are being constantly changed during the honey season, by putting empty ones on for the full ones taken off, the numbers on these tags will, of course, also be changed by striking off the old and putting on the number of the hive from which the super is last removed. If, therefore, I find a queen among the sections, after taking the super to the honey-house, the tag will tell which hive she belongs to, and I return her immediately to her own home. A case in point:

Last Saturday, Sept. 30, I took off a lot of supers under which I had placed escapes the day preceding. To-day, Monday, I took the sections out. While doing this I saw a queen standing on the face of a comb, but, contrary to the rule, she was quite alone, and there was scarcely another bee in that super. If there were any with her when the super was taken off they must have left during Sunday, and gone out through the bee-escape over the window. This was something out of the ordinary. If a bystander had asked me if I expected to find a queen there I would have answered, "Certainly not." Nevertheless, there she was, and, by accident, in plain sight, otherwise I might have overlooked and perhaps lost her. But the tag told me where she belonged, and within two minutes she was back in her own hive again. As it is getting to be too late in the season for having queens fertilized now, I should surely have lost that colony by dwindling and being robbed before spring, if I had not known where to put the queen.

I do not suppose my queens are different in this respect from those of other bee-keepers; consequently, many queens may be lost in just this way because their owner never thinks of the matter, and never suspects the true cause of the loss of a colony during the winter. A neighbor, with whom I was talking on this subject recently, told me that last fall, being unable, on account of ill health, to take the last honey off, himself, he let a hired man do the work. The supers were taken off with a rush, and piled up in the honey-room. The bees in them were only partly smoked out, and afterward liberated, as they collected in great numbers on the screen door. No thought was given to queens that were *supposed* to be in their appropriate place in the lower hive. During the winter he lost a number of colonies, and he now thinks the cause was the removal of the queens with the honey, and the failure to notice their loss until he found the colonies "gone up."

Numbers on hives are valuable in many respects besides the one above described. In keeping a record of queens and colonies, in the general apiary work, in swarming time, and in many other ways, the numbers are a help. I should find it impossible to manage an apiary properly without them. Numbered tags may be made of tin or wood, painted white, and the numbers marked on them with small brass stencils, such as the interchangeable lock stencils. It is but little work to prepare them, and they will last for many years, and pay for themselves in the convenience they afford for doing things with accuracy. I have numbers on many of my hives that are twenty years old, and as good, apparently, as the day they were made.

Independence, Cal., Oct. 2.

A NEW RECORD.

How W. L. Coggshall's Extracting-team Made it.

BY HARRY HOWE.

We have so got in the habit of thinking that our extracting-machines are the best in use that we rather expect to hold all the records for rapid extracting. In order to bring the matter to a focus I have prepared this account of our best record, so that any one who has beaten it may stand up and tell us how it was done.

Just now, Aug. 25, we are in the height of the buckwheat harvest, and are taking from 3000 to 5000 pounds of honey a day.

On the morning of this particular day Fred and I went to Ellis, 15 miles south, on our wheels. By some mistake there was not store room enough there for all the honey, so we had to leave 25 colonies until we could get back with some more kegs, which I did the next day. We got off 1500 lbs. before we stopped. This left us ready to start away early in the afternoon, so we concluded to go to the Etna yard and work there the rest of the day. This place is 5 miles northeast of Ellis, over a high range of hills, in the next valley.

As we passed through the village of Etna on the way to the bees, Fred spied a watermelon in front of a store.

"Harry," said he, "if you will carry that melon to the bee-yard, on your wheel, I will buy it."

In a very short time that melon was harnessed to the handle-bar of my Remington, and on its way through town, to the great astonishment of the grocer, who evidently did not know the carrying capacity of a wheel.

The Etna yard is about a mile from the village, back in a piece of woods. On our arrival at the bee-yard it was our turn to be surprised, for we were greeted by a series of "war-whoops," and a command to stand and deliver that melon. There was no bee-hive handy to throw at them, so we had to make terms. Our assailants turned out to be Harry B. and Archie, another extracting-team who had just arrived with a load of kegs. While we ate the melon we laid out a plan of campaign and assigned each to a station. These preliminaries having been attended to we prepared for war, which was declared at 4:15.

The bees here are in eight-frame hives, but the frames are longer and deeper than the regular Simplicity, so the eight frames are about equal to nine Simplicity frames. The supers had seven frames in the eight spaces. The combs were capped over nearly their entire surface, and bulged some from the wide spacing.

The extractor was near one of our regular four-frame machines, which have often been described. Harry B. took off and carried in the honey, replacing the filled combs with empty ones all the while. Fred turned the extractor; Archie drew off the honey, and filled the kegs, but was too light to roll them away, which one or another of the boys did for him. My especial work was to wield the uncapping-knife.

Throughout the entire trial I did not have to wait once for honey, nor did I get more than four or five combs ahead of the extractor. If I could have uncapped faster we should have made the record still larger.

At 5:30, an hour and a quarter after starting, the last comb was extracted. The estimated amount of honey was 1400 pounds—over 1100 pounds per hour. By six we were all ready to start for home, ten miles away. We put the honey into kegs that run about 220 lbs. net. Of these we filled six, and had a kegful of cappings which drained out another hundred pounds or more.

In cases like this, where there is a lot of cappings to be disposed of in a short time, we take one head out of a keg and lay a two-inch strip across the open end. The cappings then fall directly into the keg. When they are all in, a piece of wire cloth is placed over the head, and a hoop driven down over it, and the whole outfit turned upside down to drain. Next time around, the dry cappings are put into a box, and the keg filled up again.

Fred Munson, the son of a neighbor bee-keeper, weighs 130 lbs.; Archie Coggshall, W. L. Coggshall's youngest, can push down 70. My working weight is 115 lbs. Some of our other records are 900 lbs. in an hour for

two men; 2500 lbs. in a day for Archie and Harry B, etc.
Ithaca, N. Y.

[I have seen Coggshall and his men take honey off the hives, and go through the whole operation of extracting. Every thing is arranged with the one idea of saving labor; and rapidity of movement, irrespective of stings that such movements may cause, has made a class of workers who have earned the name of "lightning operators." A boy or man never graduates under Coggshall without having first acquired the art of working rapidly and taking stings by the dozen, without even flinching. If a kick will take a super off the hive a little quicker, and at the same time jar bees off the comb, kick it is.—Ed.]

GOLDEN ITALIANS.

Question.—Are the golden Italian bees a different race from the leather-colored Italians, or were they bred from the dark or imported Italians by choosing the light colored queens to breed from?

Answer.—According to my opinion, the Italian bees, no matter what their coloring, are not a fixed type or race of bees as are the German bees, or what are more commonly called "black" bees. They are a variety, or what might be more properly called a thoroughbred, the same being brought about by the environments of their home during many generations and centuries, the environments largely being the snow-clad Alps in Italy. The first importations of these bees to this country were quite dark — more so than the importations of the present day, if I am correctly informed. Early breeders of these bees found that they were liable to "sport," as it is called—that is, some of the queens reared would be almost entirely black, while others would be a beautiful yellow (the same as breeders of sheep find now and then a black or brown lamb born in a flock of white sheep); and the longer these Italian bees stayed in this country the more yellow they became, even where no special attention was paid to the matter of color. Finally, some of our breeders saw a profit in the beautiful yellow shown by some of the Italian queens, a few generations removed from the imported stock, so they began breeding along this yellow line. Notable among these were H. A. King, of Ohio; Mrs. E. S. Tupper, of Iowa, and Jos. M. Brooks, of Indiana, the latter seeming not only to breed for color, but for all of the other good qualities possessed by the Italian bee; and if there is any thing of praise to be said of the very yellow Italians of to-day, Joseph M. Brooks should come in for his share, for there are very few if any very yellow *Italian* bees in this country, at this time, but have more or less of the Brooks stock "blood" in their "veins." Why I have emphasized the word "Italian" is, there are many very yellow bees in the country which came from Cyprian stock originally; and this yellow breeding has been carried to such an extent that, in the very yellowest specimens, the queens do not show the least bit of black or brown on their abdomens, and the drones' abdomen is nearly a solid mottled yellow, while nearly or quite all of the workers are a solid yellow except the tip or point of the abdomen, which is of a brownish-black color. As this color is of such a rich orange or gold color, these bees are very properly called "golden Italians;" but, aside from those having Cyprian blood in them, all originated from queens imported direct from Italy, being brought up to their present standard as to color by selection.

FIVE BANDED BEES.

Question.—Are golden Italians what are called by some people five banded bees?

Answer.—The worker bees from an imported queen direct from Italy show two colors on each of the three horny scales or segments of the abdomen, next to the thorax. That on each segment nearest the thorax is of a leather color, and that farthest from the thorax being of a brownish-black color. This gave birth to the expression, "three-banded bees." As the breeding toward the yellow progressed, some individual workers were found having a very narrow stripe of yellow on the fourth segment of the abdomen, and with this stripe came the contention that the Italian was *not* a pure race of bees, but a mongrel or thoroughbred, as the question arose regarding this fourth band thus: "If bees showing three bands are pure, what are those showing yellow on four bands?" As the breeding for yellow continued, that on all the segments became wider and wider, the yellow encroaching on the black or dark more and more, all the while, until individual specimens began showing a very minute yellow stripe on the front edge of the fifth segment, which gave rise to the present term, "five-banded bees." As this yellow on the fifth segment increased, the dark or black stripes on the first, second, and third segments vanished altogether; and as progress continued the black finally disappeared on the fourth segment also, which made this individual bee appear something like a lump of gold as it sported in the sunshine in front of its hive. This gave birth to the name "golden Italians." And thus it is that the five-banded bees and the golden Italians are one and the same thing, only the goldens are a little further advanced in the race toward the yellow line than are the five-banded. While this is so, the two terms are very largely used indiscriminately, both being applied to the very yellow bees of to-day.

CONTRACTING BROOD-NEST FOR WINTERING.

Question.—Is it necessary when wintering on the summer stands to contract the brood-nest by using chaff division-boards?

Answer.—No, it is not absolutely necessary; still, it is very generally believed that, if the three lightest frames, as to honey, are taken

out, and those left spread apart a little so as to give more room for the bees to cluster between each two combs and a chaff division-board, each taking the space occupied by a frame, placed in each end of the hive, the bees will winter enough better to pay for all trouble and expense. And while I agree with the above perfectly, I go still further and say that, in any locality, where such a course will pay, it will pay still better to have all colonies in full chaff hives which are wintered out of doors. Of course, the expense will be greater at the start; but after you have your bees in chaff hives there need be no further fussing either summer or winter thereafter, as the chaff hives are fully as good for the bees in the summer as in the winter. Some seem to think that a chaff hive is not a good thing for summer; but from an experience covering more than a score of years I am satisfied that a chaff hive will give a greater surplus of honey during the summer, if I may be allowed such an expression, than will a single-walled hive, especially of comb or section honey.

COVERING FOR BROOD-FRAMES.

Question.—When wintering out of doors, which is the better way to cover the brood-frames—with a thin board or super cover, putting the chaff cushion on top of them, and then a cover on the cushion, or putting the cushion directly on the frames with a Hill device or something of the kind under it, and then putting on the cover?

Answer.—My method of using chaff cushions is as follows: Buy the necessary number of yards of unbleached cotton cloth, and cut it in such shape that the pieces will just cover the top of your hive from outside to outside. Now put on your Hill device, or three or four sticks one-half inch square and ¾ as long as it is across the tops of your frames, so the bees can pass over the tops of the frames under the covering. On top of these sticks spread your piece of cotton cloth, and on top of the cloth place the chaff cushion, and over all place the hood or cover. This cover should not come down on top of the chaff cushion, but should allow a space of at least an inch (two is better) over the cushion for the air to circulate so as to carry off the moisture which may arise and be driven up through the cushion from the bees below.

AGE OF USEFULNESS OF BROOD-COMBS.

Question.—How long can combs be used in the brood-frames before it will be necessary to cut them out and put in foundation, or let the bees build new ones?

Answer.—Well, really I don't know. There are some who think it is necessary to renew brood-combs every twelve or fifteen years, they believing that, by that time, the cocoons will have so accumulated in the cells that the accumulation will make the cells so small that dwarf bees will be the result. This "think" of such parties seems to me to be ungrounded, for I have brood-combs in my apiary which have been in continuous use for 30 years, and some much longer, as they were transferred from box hives, and, so far as I am able to discover, the bees hatching from them are as perfect as ever. If I had perfect worker combs, from the present light I have I should say that they would be good for half a century, barring accidents. But this is something each must decide for himself. Perhaps I am too conservative; but it has always seemed to me to be a foolish thing to destroy some of the good things we have in use for the sake of replacing it with something *new*.

THE DESTRUCTIVENESS OF DISEASED BROOD IN SCHOHARIE CO., N. Y.

I don't know but I have made it too tame in what I have said about diseased brood, for it certainly has ruined a good many apiaries in Schoharie and Montgomery Counties; and a great many who keep only a few hives are all cleaned out. It did look very discouraging; but when so many have got to be all right again it seems to be somewhat encouraging. If we can only winter our bees well, and succeed in getting them strong, and keeping them so, if it can be done by uniting bees it will be better than to try to nurse up weak colonies. We may be able to fight it out.

Where a great many bees are kept, and where the diseased brood has done the greatest damage, I think fully three-fourths of all the colonies have perished in the last three years, for a distance of 35 or 40 miles, leading from Gallupville, Schoharie Co., west to Central Bridge, Sloansville, Glen, and Randall, Montgomery Co. The disease is also in Otsego, Schenectady, and Albany Counties.

Middleburg, N. Y. N. D. WEST.

A CRITICISM ON THE TALL SECTION.

There has been so much said in favor of the tall narrow section that it seems to me the adverse side (if there is one) should have its say. Following E. D. Ochsner, p. 752, I will state that I have produced some honey in the above section for the past two years, and have taken pains to ask the opinion of disinterested parties in respect to their choice, placing the regular 4¼ × 4¼ section alongside of the ideal. All I have asked here in Wisconsin said they would prefer the square section, except two people. One was a commercial traveler, and the other was W. Z. Hutchinson, of Michigan. Mr. H. said he liked the shape of the narrow section better; that pictures, door and window frames, etc., were of that oblong shape, and it is more pleasing to the eye. But the womenfolks everywhere have said the square piece of honey would lie on a small round plate better than the other.

Now, I agree with Mr. Hutchinson in regard to the shape of picture-frames and window-frames; but a section of honey is neither one nor the other, and is not intended for that pur-

pose. Further, no one has ever told us how to put foundation in the tall section, and have it stay where we want it, as easily as can be done with the square section. The best section ever used by bee-keepers was both tall and wide, and held about 1½ lbs. of honey; and if all had been satisfied with it we could have been using it to-day. If no one had offered a smaller section we could have sold the large ones just as well, and have had more to sell with the same amount of labor. There is no question but that consumers would buy the honey if we produced it in that shape; but if we are so foolish as to introduce something still harder to produce, and more difficult to handle, than the one-pound section, the dealers will all want it of course, and we shall get not one cent more for it as soon as it becomes common.

Browntown, Wis., Oct. 24.

[This question of a tall versus square section hinges not so much on what the *producer* thinks of it, but upon what the *consumer* or *market* in a given locality calls for. The average bee-keeper regards with distrust any thing that is likely to require a change in his fixtures. The consequence is, the real merit of the thing under consideration may be unconsciously covered up by prejudice and self-interest. My own observation regarding the expressed opinions of others has been quite the reverse of yours; but why this difference? Is it not true that our friends like to express an opinion that will be likely to agree with our own? You may think they do not know your preference; but it is a hard matter to state a question without revealing your own opinion in advance. The tall section is not in much favor in some parts of the West, and we may as well admit that fact first as last. In Colorado especially, the bee-keepers are decidedly opposed to it; and from the few reports we have had from Wisconsin and Minnesota I should judge that it is not very popular in those States. But in the greatest honey markets in the United States, and possibly in the world, the tall section has the general preference. I refer to the markets of Albany and New York city.

This preference for tall sections and square ones, it seems to me, is a good deal like the question whether we prefer warm heavy shoes for Canada or light summer shoes for Texas. Local conditions are so very different that, to express an opinion on the merits of the two kinds of shoes, would seem idle.

As to the matter of fastening foundation, that is no more difficult in the case of the tall box than the square one. Why should it be? The tall section is only ¾ inch higher than 4¼ square.

Again, the Ideal section 3⅝×5, is condemned by some, while the 4×5 is considered just the thing.—ED.]

GENTLE BEES THAT ARE HUSTLERS.

The editor, page 725, speaks of the extra amount of work "cross or snappy" bees are able to turn out. Now, that may be true; but I'd like to see any "cross or snappy" race of bees take a contract to outdo one hive that I have, filled with bees from a queen from J. P. Moore, Morgan, Ky. Through an advertisement in GLEANINGS I sent to Mr. Moore and obtained something as near perfection as I have ever seen. No one has ever been stung by her bees, and the hive has been opened repeatedly in wind (do you know what Dakota wind is?) without smoke or veil. I send you a photo of my little daughter, two years and nine months old, with a frame of them. Notice the bee on her forehead. She knows they will not hurt her. She has often been stung, but not by that colony; and if any one has "cross or snappy" bees that can beat them hustling, please quote prices. I am open to conviction. D. B. LYNCH.

Watertown, S. Dak.

[I do not know any bees that will outdo yours, friend L., unless it is those spoken of by A. J. Wright in our previous issue. These gentle bees that are full of business are just the chaps we want. Verily this talk about $100 queens, even if it has ended in nothing but talk, so far as high priced queens are concerned, will be productive of a much higher grade of bees for business.—ED.]

THE CRANE SMOKER.

I note a letter from Mr. Callbreath, on page 754, regarding the weakness of the Crane smoker. I thought it might not be out of the way to say that the Crane as you have made it is not always thus weak. I have one that I have used for five seasons, and nothing whatever is the matter with it or ever has been. True, I have not used it as constantly as might be, as the writer referred to uses his; but I have often been thoughtless, and left it out in the weather all night to get damp, and even wet with rain; and I almost always have opened it, when putting in fuel, by hitting the under side of the nozzle against any convenient fence, post, or other object. So it seems to me it is pretty well made. A. NORTON.

Monterey, Cal., Oct. 30.

[We try to give space to the criticisms as well as to the praises of our goods. *Of course*, we like the latter better; but the others, when honestly and fairly given, are more valuable, both to us and to our customers.—ED.]

TRAVEL-STAIN OR PROPOLIS; HOW TO PREVENT BEES FROM GNAWING THROUGH THEIR QUILTS.

For years past I have used waxed cloths over brood-frames. The bees propolize the spaces between the frames quite liberally, and ofttimes manage to insert a good deal of the stuff between the cloth and the top-bars. Once in a while I remove the cloths and run a hot laundry-iron over them, thus diffusing the propolis over and through them. Prior to this operation the bees are somewhat disposed to gnaw the cloth, but never after. Now, I have a number of these cloths that have been in use several years. They are as dark or black as any brood-comb I ever saw. I use propolis

for certain purposes. I have cakes and balls of it, reserved for future use. They have all become nearly black. Take one of them, pull and work it as you would taffy, and, like taffy, it will assume a light color. This, I think, proves that the dark color is not due to foreign admixture.

Propolis is dear to the heart of Deborah. The varnisher with her brush and liquid propolis is busy everywhere. Nothing inside the hive escapes her. Combs, cracks, frames, interior walls, and even the exterior, when the bees cluster out, receive her attention. This varnish blackens with age, and this is "travel-stain"—at least I think so. A.

THE "REFORMED" SPELLING.

I have only commenced taking GLEANINGS, but notice you are thinking of changing the spelling of the English language, which change is said to be "reformed." Surely this is a misnomer; and as we find it in the *American Bee Journal* it is *deformed* spelling. We read, not by spelling each letter in a word, but by the general *appearance* of the word, just as we recognize our friends — we do not stop to analyze them, but know them by their general appearance. When deeply interested in an article by Dr. Miller, Doolittle, and others, and to run up against one of those hideous malformations, miscalled "reformed," the reader has to stop and study out what it may be intended for. By this time he has lost the thread of the story, and a large share of his patience; wishes the editor of that paper had had in his younger days the advantage of a common-school education, and not been compelled to pick his learning out of Josh Billings' Almanac. How do you think the word of God would look if edited in the office of the *American Bee Journal*, while the editor has this bee in his bonnet? P. M. HAMLIN.

Binghamton, N. Y., Nov. 10.

[We had not proposed to go as far as the *American Bee Journal* in its reform, but only to make a very slight change — so slight that it would hardly be noticed. We have for years used the short forms, *program* and *catalog*, and now it was proposed to go one little step further. We are still waiting for expressions from our readers; and if there are enough to protest, the "reform" will not be inaugurated. So far there are about seven who have voted against, to about 100 for it.—ED.]

REFORMED SPELLING CONDEMNED.

Dear Mr. Root:—I admire you and your paper as an authority on bees; but when an editor of any periodical with a circulation of only a few thousand copies published once a month anticipates, better say contemplates, the modification of the English orthography, then he must be laboring upon the borders of "swellheadism." Good old Webster is good enough for me, and the rules therein are what this generation should adhere to. There is one bee-journal that makes a horrible attempt in this direction, and that should suffice. You remarked that you had not received an objection, etc. Well, put me down as an "objector." Go ahead and modify spelling, and then eliminate yours truly from your list. Confine yourself to bees and bee-questions, and you have a perpetual subscriber in

Yours truly,

GEORGE N. WANSER.

Rahway, N. J., Nov. 10.

[You are the seventh person out of the 100 and more that have voted for the reform who has objected to the proposed slight changes.

GLEANINGS with its nearly 11,000 paid-up subscribers is not a very big concern, it's true; but the New York *Independent*, one of the greatest metropolitan weeklies ever published, has been carrying into effect for years just the reform that has been proposed for us. It has lost neither prestige nor influence.

You say, "Good old Noah Webster is good enough" for you. Have you forgotten that Webster was a spelling-reformer — that he eliminated *u* from such words as *labour?* and that he adopted other shorter spellings? Why, Webster went as far as we propose going.

Your position would leave no chance for progress. We should have a regard for the rising generation, and the foreigners who come to this country, if not for ourselves.

But you ask, "How about those who have not voted?" I have assumed that those who have not expressed themselves have no preferance. He who stays away from the primaries has no right to kick afterward if things don't go to suit him. You say that, if we inaugurate the change, we may drop your name, even though the great majority is against you. Do you really think that a threat of this kind is in good taste? and do you believe that the loss of one subscriber or dozens of them would deter us from carrying out a policy that we thought was for the general good? and does it not almost "border on swellheadism" to imply that we would be influenced by the action of one subscriber irrespective of the expressed opinion of hundreds of others? Now, don't jump to the conclusion that we are going to make the change. There is no hurry; and, besides, we wish to get the fullest expression. If there are enough "objectors" we will continue on as we have been. In the mean time, don't get the idea into your head that we proposed going as far as the *American Bee Journal*. The change proposed by us would hardly be noticed, even if it were carried into effect.—ED.]

THE ECONOMIC SIDE OF SHORTER SPELLING.

Please accept my thanks for your kind reception of my plea for shorter spelling. It is interesting to note that advertisers are beginning to appreciate the advantages of shorter spelling. In a recent issue of a family story-paper I counted a dozen advertisements employing the word *catalog*, and less than half of them spelled it with *ue*. In a paper like *Youth's Companion*, where advertising space costs $4.00 per agate line per insertion, *ue* would cost in agate type $8.32 per year, or in nonpareil about $10. Please record this as a vote for the shorter spelling.

Addison, N. Y. E. B. THORNTON.

EXTRA pages again.

THAT man Hutchinson of the *Review* knows how to dish up seasonable bee-stuff.

THE *American Bee Journal* is getting out a good report of the Philadelphia Convention. The paper of Prof. Wiley, United States Chemist, is especially valuable.

IN next issue we expect to give pictures of the two best-looking editors in all beedom. (The representatives of GLEANINGS will not be in it of course). Good-looking girls will vie with them in—in good looks on other pages.

IN our next or Christmas number we expect to show some of those prize pictures of pretty girls hiving swarms of bees. Old bachelors need not put in their applications, because I have made a solemn promise not to give their names.

ALL empty combs not in the hives should be put in moth-proof boxes, hives, or rooms, where the temperature is liable to go down to freezing or lower. Combs after a good freeze, and kept away from further visitation of moths, will be safe until wanted again.

WE shall go into winter quarters with nearly 300 colonies. We winter exclusively outdoors, packed in chaff or planer-shavings. We have not much preference for one over the other, although, as a matter of fact, we use the shavings because they can be very readily obtained.

MORE of an effort should be made by bee-keepers to educate consumers to the palatability of candied honey. In many a bee-keepers' home the white solid honey is preferred even up. It spreads better on bread, does not muss up whiskered mouths, and the small children can eat it without smearing the table-cloth.

WHILE this journal is going to our readers I shall probably be in attendance at the Colorado State Bee-keepers' convention at Denver. I go with my largest and best camera, prepared to shoot any thing or anybody that stands in the way—that is, provided they are good-looking, you know. My! but I only wish I had the time to run up northward and shoot prairie chickens. I am very fond of that kind of "snap shot."

I TAKE this opportunity to thank the many friends who have spoken so kindly and favorably of the new edition of the A B C of Bee Culture.

If there is any one thing in the new edition that has met with the hearty approbation of bee-keepers in general, it is the fact that I have endeavored to give, carefully and faithfully, the views of others, even when their practices are opposed to my own experiences.

COMB HONEY IN COLD WEATHER.

BE sure to warn the groceryman, or any one else who handles your honey, to keep that in the comb, at least, in warm dry rooms. A room subject to freezing temperature should never be used for the storage of comb honey. Freezing cracks the cappings, and when the room warms up again it will sweat like a pitcher of cold water on a summer's day. Unsealed comb honey receiving such treatment will also be ruined. The "sweat" will mingle with the honey, thinning it so it will sour. The commission man is supposed to know all this, while your local grocer may be utterly ignorant of it.

THE NEW ARRIVAL AT THE HOME OF THE HONEY-BEES.

I FULLY intended to tell something about the latest baby at Rootville; but Bro. Hutchinson has got ahead of me. This is what he has to say:

Ernest Wynne Boyden is the name of a new little boy that came November 2d (the 21st birthday of our twins) to gladden the home of Mr. and Mrs. A. I. Boyden, of Medina, Ohio. Mr. Boyden is the Michigan young man who went down to Medina a few years ago, became one of the business managers for The A. I. Root Co., won the heart and hand of Constance Root, or "Blue Eyes," as Mr. Root used to call her in GLEANINGS, has since become one of the partners in the company—and now has a boy, as well as the rest of them. Congratulations, Arthur.

DR. MASON ON THE SPELLING REFORM.

DR. A. B. MASON has not a little to say in the last *Bee-keepers' Review* in favor of the shorter forms of spelling proposed for GLEANINGS. In winding up he says, "I am going to vote, even if it does cost a cent; and still I have a sort of feeling that a postal card is hardly large enough for my emphatic 'go ahead; and among other improvements in GLEANINGS, improve your spelling.' And now I am wondering whether the staid and methodical *Review* will fall in line." But, dear doctor, we have not "fallen in line" yet. We are going to wait long enough to get full returns from those who desire to express themselves on this question. I said a while ago, that only one protest against the change had come in; but now six more may be added to the list, notwithstanding "yes" votes are still coming in. There are so many of the latter now that I can not give space to them.

"GADDING ABOUT THE COUNTRY."

SOMEBODY was criticising Mr. W. Z. Hutchinson for "gadding about the country" when he ought to be at home "tendin' to his knittin'." While it is a splendid thing to be punctual with periodicals, yet it seems to me it is almost absolutely nececssary for the editor of a bee-journal to skirmish around among his friends and — his enemies to get his own

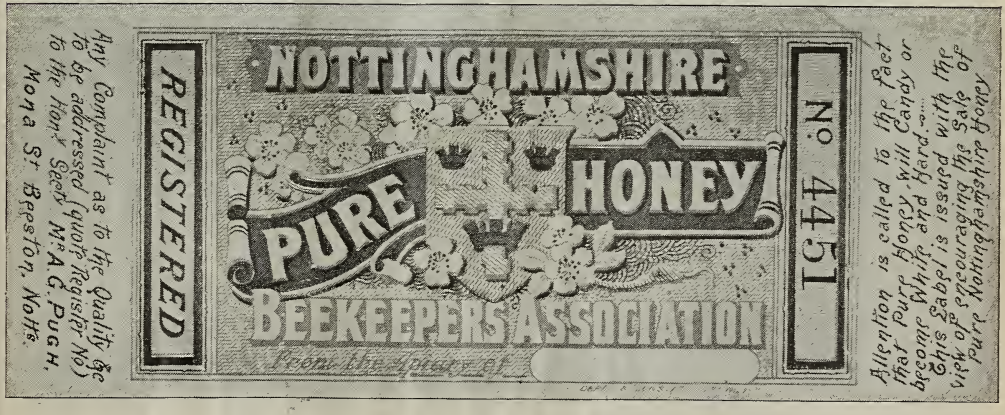
ugly corners knocked off. While I still have a few "corners" to be disposed of cheap, incidentally I'd like to see how those chaps in the wild and woolly West do things. My visits thus far have been largely eastward, with perhaps one or two short runs out into Nebraska, Illinois, and Michigan; but I have never been in Colorado, and in the short time I shall be gone (two weeks) I hope to pick up something of interest for all our readers. I'll leave my bike at home this time, for those magnificent distances are too great to cover on that kind of horseless vehicle.

THE ASSOCIATION BRAND OF PURITY.

I BELIEVE I have before referred to the fact that the British Bee-keepers' Association is perhaps the best organized of any similar association for the advancement of bee-keeping in the world. The Baroness Burdett-Coutts is, I believe, president, an attachee of the queen's household, and one who is greatly interested in bee-keeping. The main or parent organization is affiliated with a number of county associations throughout the kingdom. For instance, there is a Kent Bee-keepers' Association, a Nottinghamshire Bee-keepers' Association, and how many more I do not know. Each of these organizations, I believe, puts out a special brand or label for honey which the members, upon complying with certain conditions, are permitted to use.

I have had two of their labels reproduced for the benefit of our American producers. It is evident that any honey that buyers get, bearing any of these brands, is guaranteed to be pure and of good quality. The special register number shows by whom the honey was produced; and if any complaint arises, the responsibility can be located where it belongs. A knowledge of this fact naturally enough leads the producer to be careful what honey he puts out under the association brand. But I presume that, as a further precaution, all honey, before it can be thus labeled, is required to pass an inspector appointed by the association. I say *presume*, for I don't know.

In time the general trade will learn that honey bearing such labels would necessarily be pure, and of the very best quality. The poorer grades of honey should, of course, be otherwise disposed of.



The effect of this branding of honey of known purity, and of the very best quality, must be such as to bring the very best prices; for the general consuming public is perfectly willing to pay a good price *provided* it can be

assured that it is buying pure goods and of the very best.

Some years ago an effort was made on the part of a few members of what was then called the North American Bee-keepers' Association, now known as the United States Bee-keepers' Association, to get up special association labels or brands, the general scheme having originated from the successful practice of the British bee-keepers' associations, but the plan did not materialize. But within the last two or three years one of the county associations of New York began the scheme, and, if I am correct, it is still carrying it into effect. A brand, or stamp, was prepared, and every case of honey approved by the inspector bears this brand. The idea was a good one, and it may be by this time that this particular brand of honey has won a reputation of its own; and when it becomes known, the result can not be otherwise than that higher prices will be secured.

DAVID H. COGGSHALL; REVERSIBLE VS. NON-REVERSIBLE EXTRACTORS; HONEY BY THE CARLOAD.

I HAVE before spoken a number of times of W. L. Coggshall, or "Lamar," as he is familiarly known in the buckwheat country; but I have given only passing references to his brother, David H. Coggshall. The latter is equally successful as a business man; but instead of making bee-keeping so much of a specialty he seems to have a combination of other lines, farming, bee-keeping, and poultry-raising.

David H. keeps something like 600 colonies, and occupies a territory between Lake Skaneateles and Cayuga Lake, and, if I am correct, immediately north of West Groton, while his brother Lamar occupies the territory between the lakes directly south. The two brothers were formerly in partnership; but in 1877 they dissolved, each running for himself.

The methods of David H. are, I should suppose, practically the same as those of W. L.; but whether the former practices the kick-off-super method of taking honey, I do not know; but I do know that he wears an armor (a bee-suit) similar to what his brother finds necessary and convenient. This armor may be seen hanging to a tree (scare-crow fashion), in the left of the large picture shown on next page. It consists of an ordinary waist or wamus, a bee-veil and hat being part and parcel of the waist. This is looped up all around the body, and is made absolutely bee-tight. Wire cloth in place of netting of some sort seems to be used in this particular bee-hat; indeed, I doubt very much whether the ordinary silk brussels netting would be strong enough to resist the desperate onslaught of the Coggshall bees. There, I guess I better not say any more on that subject or I may have the two brothers hauling me over the coals for giving away their—their—trade secrets.

The gentleman in the right foreground is David Coggshall himself. One would think, in spite of that ominous bee-suit, to see him standing there *bareheaded*, that I had awfully maligned the Coggshall bees; but let me whis-

RESIDENCE OF DAVID H. COGGSHALL, WEST GROTON, N. Y.

per in your ear, that, when a man is standing where the world is gazing on him, he can stand any kind of onslaught without flinching.

Just at the right of the bee-suit, and resting on hive 160, stands one of the Coggshall extractors. This seems to be constructed exactly the same as those used by Lamar. As I have before explained, the machine is non-reversible, taking four Langstroth frames, the frames hanging exactly as they do in the hive. Instead of being placed in the four sides of

ONE OF THE OUT-YARDS OF DAVID H. COGGSHALL, OF GROTON, N. Y.

the basket, in the ordinary fashion, they are set down in the machine, two on a side. A strip of tin separates the two combs so that the honey from the inner one, instead of striking the outside comb, flies against the tin, draining down in the extractor. The cross-arm is made of wood, and even the bearings are of the same material.

As crude as this arrangement apparently seems to be, I am not sure but, by the manner they operate, they can extract as rapidly as one could from an ordinary four-frame Cowan.

It is certainly an advantage to set the combs in the extractor in the same way they are taken from the hive ; for I am satisfied they can be picked out of the hive and set down in the extractor more rapidly than the same number of combs could be picked out and inserted in a Cowan, because, in the case of the latter, the frame is lifted out with one hand, and with the other hand it is turned at right angles so that it can be set down *endwise* in the machine. On the other hand, the Cowan would save time in reversing, so that, take it all in all, if there were a race or contest between the two machines they would run very even in the actual product extracted. "But," you say, "why not make Coggshall extractors?" For the reason that the bee-keeping fraternity has been educated the other way; and although we have offered to furnish such extractors, no one has called for them outside of Coggshall's immediate neighbors.

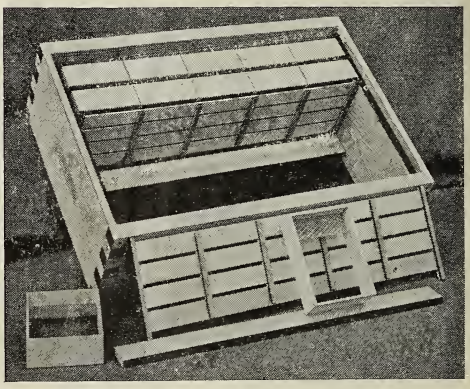
The annual crop of honey produced by the Coggshalls in good seasons can be measured, not only by the tons but by the carloads. When I was there I overheard (I wasn't eavesdropping) David say to Lamar that he had had an offer of a certain figure on a *carload*, and would he, Lamar, accept? The latter hesitated a moment, and then said, "Better wait a little longer ; we can do better than that." "*Carload?*" said I, interrupting. "How many cars do you two produce?" "Not very many this season," was the reply.

From one of his best yards David Coggshall took as many as 60 210-lb. half-barrels of well-ripened honey; and Lamar, from all his yards, took 78,000 lbs. in 1897, or an amount equal to three carloads; or the two brothers, at this rate, in a good season, might produce between four and five carloads.

Both of the Coggshalls make money at any thing they undertake, whether it be at farming or at bees. They have beautiful farms, and live in fine residences, one of which is shown on the previous page, the home of David Coggshall. They are finished off in hard wood inside, and are equipped with all the conveniences to be found in the best homes in the land.

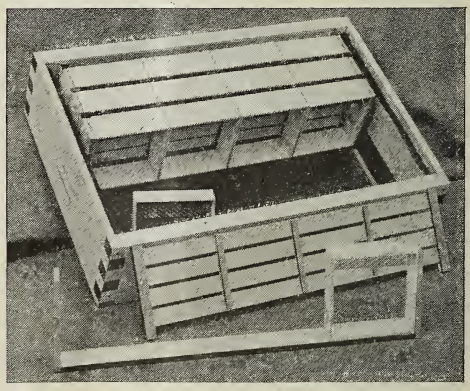
COMB-HONEY SUPERS.

THE regular T super is a general favorite with a large class ; but within a few years the section-holder arrangement seems to be getting the larger share of patronage, and very recently that super which makes use of the simple supporting slats has been gaining favor. As the construction of the latter is not very generally understood I give here a picture that will show very clearly how it is made. This is what is called the Ideal section super. The sections themselves are $3\frac{5}{8} \times 5 \times 1\frac{1}{2}$ wide. Five of them are used in each row, said row being supported by a slat $\frac{3}{8}$ thick and $1\frac{1}{2}$ wide. Between each two rows of sections and slats is inserted a fence—fences, slats, and all, being held in the usual way by strips of tin



nailed on the bottom inside edge of the ends of the super. This super economizes space better than any thing else that is now on the market.

The 4¼ section, owing to the fact that four rows are hardly sufficient to occupy the whole inside length of the super, and that five rows would be longer than the length desired, re-



quires a wide frame or a section-holder. The ¼-inch ends of the section-holder, together with the bee-space between ends of super, plus the four sections, take up all the available space. The section-holder ends and the bee-spaces are regarded by many as being superfluous. If the Langstroth frame had been a little shorter, so that the 4¼ section would have just filled out the length of the super, we should then have had an "Ideal" arrangement.

THE DIVISION-BOARD FEEDER.

DURING the past summer and this fall, our apiarist, Mr. Wardell, was very enthusiastic

over the Doolittle division-board feeder. At first I did not take very much stock in it; but Mr. Wardell persisted that it was the best feeder for stimulating ever devised, and since seeing it in use I have come to share his opinion.

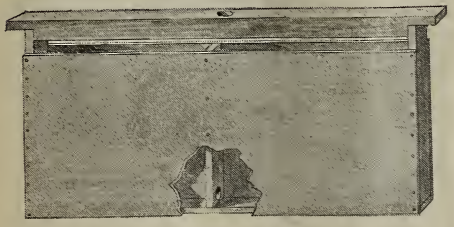
Its manner of construction will be apparent from the engraving below. It consists of an ordinary brood-frame having a thick top-bar, with this difference: That the frame, instead of being made ⅞ or a full inch wide, is anywhere from 1½ to 1¾. On each side, and reaching up to within ½ inch of the bottom of the top-bar, are nailed two thin boards, the nails being driven close together to make the feeder syrup-tight. To further stiffen the feeder, a central partition with a hole in the bottom is let down the feeder and nailed. The purpose of this hole is to give the syrup a chance to seek its level on either side of the partition. Another hole pierces the top-bar, and it is through this that the feed is poured.

This feeder is set down in the hive like an ordinary brood-frame, and can be used, when empty, as an ordinary division-board or dummy to fill up the space in the hive not occupied by the combs; in fact, it is a good plan to have one in every nucleus; for, while it serves the purpose of a division-board, it will be ready at any time for feeding.

The operation of feeding is very simple. With a large tea-pot filled with syrup, go to the nuclei requiring to be fed. Slide the cover or quilt back just far enough to expose the top-bar of the feeder. Pour the syrup down into the feeder through the hole until the holder is full. Roll the quilt back, and the hive is then closed up.

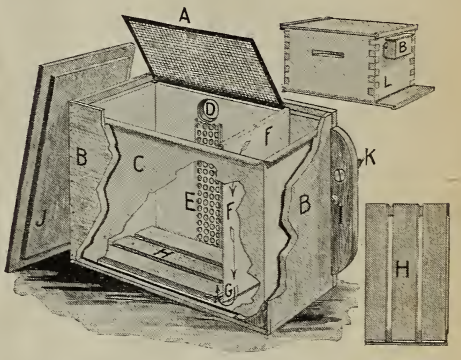
These feeders can thus be filled without exposing the cluster of bees; and as the feeder is right down in the brood-nest, in the warmth of the cluster, the bees will readily take the feed at any time.

If you are not a good enough carpenter to make water tight joints in wood, you can make your feeders so they will hold by pouring in hot paraffine or beeswax, and then quickly pouring it out again.



We have used a large number of these feeders in our yard, for Mr. Wardell seems to prefer it to the Boardman, since on cool nights the bees will not take the feed from an outside feeder as they will from one inside next to the cluster. Then Mr. Wardell thinks the Boardman is a little inclined to incite robbing; and for stimulating nuclei he very much prefers the Doolittle.

Speaking about feeders, Mr. C. S. Foster, of Meriden, Ct., has devised another outside feeder. Unlike the Boardman it is fastened on the outside of the hive; and it is so constructed that the feeder can be filled at any time without disturbing the cover or the hive itself. But of course there has to be a hole



THE FOSTER BEE-FEEDER; PATENTED.

through the side of the hive into the feeder, and through this the bees take their feed. I have no doubt this would be a very excellent feeder, and quite free from any tendency to start robbing; but it has one great objection; and that is, the average bee-keeper would be much disinclined to bore holes through the sides of his hives.

BOOMING POOR ARTICLES FOR SELFISH INTERESTS.

On page 338 of the *Bee keepers' Review*, R. L. Taylor says:

> The editor of Gleanings (pp. 753, 757, *et al.*) seems to be very sensitive to the innuendoes and charges frequently made that his company takes up and booms new things, like plain sections, tall sections, fences, etc., with the sole purpose, regardless of the interests of customers, to make money out of them. Indeed, one is led to wonder whether the editor, judging from his anxiety and protestations, does not ignorantly feel in some degree guilty. But those who are making the insinuations referred to ought to know better than to do it. Such a course would be suicidical on the part of the company. Successful trade depends upon a profit to each party to it. The A. I. Root Company is not without commercial sagacity; and it is not going to run counter to that principle knowingly.

Perhaps I may have been over-sensitive at some charges that have been made against us; but in any case I did not lose any sleep over the matter, neither did I feel "in some degree guilty," although it may have looked very much that way from what I have said along these lines of late. The fact of the matter is, we can not tell what we would do or say until we are hit ourselves. It all depends on whose ox is gored.

But Mr. Taylor has hit the nail on the head when he says that a course of this kind would be suicidal on the part of the company, and that successful trade depends on a profit to each party. Exactly. Outside of the morals or ethics of the thing, one for his own self-preservation should not from motives of self-interest try to make a general catalog out of his paper; for if he does he will do something far worse — he will cheat himself in the end,

as well as the government of rightful postage. I would not take space in a paid-for journal for the discussion of supplies except that I know that such a subject is of general interest, especially when it relates to changes and improvements. For instance, I take two bicycle papers, and there is not a department in these papers that is of more interest to me than the general discussion, from the manufacturers' standpoint of view, of various improvements that are introduced from time to time; and the same is true in regard to photographic journals. In bringing up the discussion of supplies in a bee-journal, one should have in view the placing of something of general interest before his readers. By so doing he often gathers suggestions which, if he is a manufacturer, he may be able to incorporate into his supplies, thus benefiting the fraternity at large. I have of late invited criticism on the things we make. The result has been that we slightly changed the construction of several of the things we manufacture. The discussion in the first place is interesting, and the result in the end is permanent gain for the bee business as a whole.

BEE-KEEPERS' INSTITUTES FOR NEW YORK.

The following letter from W. F. Marks will explain itself :

I wish to call attention to the bee-keepers' institutes to be held in this State next month under the auspices of the Bureau of Farmers' Institutes, F. E. Vawley, director. This is a new departure; but if bee-keepers will take hold and show that they appreciate and deserve them, we hope to make them a permanent feature of our work in this State.

I inclo e a clipping from the *Country Gentleman*, giving a list of meetings already assured, and should be pleased to have you give this mention in your next issue, and also urge the bee-keepers in the several localities to take an active interest in them.

"By special arrangement with the State Bee-keepers' Association, the director will hold bee-keepers' institutes (papers and discussions be ng confined entirely to the apiary) at the following places and dates: Batavia, Genesee Co., Dec. 13; Canandaigua, Ontario Co., Dec. 14, 15; Romulus, Seneca Co., Dec. 19; Cortland, Cortland Co., Dec. 20; Auburn, Cayuga Co., Dec. 21; Geneva, Ontario Co., Jan. 10."

Chapinville, N. Y., Nov. 20, 1899. W. F. Marks.

I should really like to attend some of these institutes, but I fear it will not be possible for me to do so.

WHAT TO DO WITH BADLY MASHED COMB HONEY.

We lately received a shipment of comb honey, and in this was a lot that was about as badly smashed as it could be. Some of it was so jammed and mangled, if I may use that word, that it was not even fit to put out for chunk honey. The better part of it we placed in wooden butter-dishes, and sold for chunk honey. The rest we put into a large cheese-cloth bag and then suspended it over a tub. It hung thus over night, and the next morning the liquid portion of the honey had all run out, leaving practically nothing but dry combs and pieces of combs in the sack. Of course, if there had been sealed honey it would not have drained ; but that to which I refer was so badly smashed there were no cappings over the cells. The particles of wax floated on the surface of the honey, leaving the clear liquid portion of it to settle at the bottom, and strain through the cheese-cloth. In the morning we had a bag of dry bits of comb, or almost dry, and a tub of clear extracted honey.

I. S. B., Ark.—We do not recommend Hoffman frames for Southern climates, or any locality where propolis is deposited very freely. Our staple-spaced frame should be used in places where bee-glue is very plentiful.

H. E. W., Cal.—You can not very well rear queens before warm weather sets in. You can do something at it, however, during cool weather, providing the hive is warmly packed in chaff or some other equally good material. Next spring bees should be fed a little daily—preferably with warm feed ; then proceed as described in Queen-rearing in the new edition of our A B C book.

W. C. B., Mich.—I would not feed sorghum molasses or any other cheap stuff to the bees for winter food. As a general rule it may be said that granulated sugar, for the money, contains more real food or sweetening for the bees than any thing else. For our locality we would feed up along until September or October, for the bees should have a chance to ripen and seal their stores about a month before actual freezing weather comes on.

R. S., Ont.—In estimating the stores that a colony should have, one should always figure that a syrup fed half and half (that is, half water and half sugar) is quite thin, and when thickened down by the bees it will stand in the proportion of about ¾ sugar and ¼ water. In counting on the necessary amount of stores, you will have to take into consideration this shrinkage. If you wanted to put in 20 lbs. of sealed stores I would feed at least 30 lbs. of sugar syrup, half and half.

F. B. C., Mich.—1. I would not advise you in November to extract all the honey out and then feed sugar syrup. Indeed, it is the usual practice to leave the honey sealed in the combs rather than extract it and put sugar syrup in its place. Good sealed honey is practically as good as sugar syrup sealed. 2. Bees would be likely to consume or waste some of the syrup during the process of feeding ; that is, for every pound of syrup fed you would be able to realize only about ⅔ or ½ of sealed stores by actual weight. 3. Bees would not consume much until actual winter set in. 4. The average amount consumed during the winter for outdoor and indoor wintering varies greatly. The stores may have to include the spring as well as the winter, or till such time as the bees can be fed safely again, providing the honey does not come in in time. I would recommend about 20 lbs. for outdoor wintering, and 15 for indoor wintering, of sealed stores.

Ye are the temple of the living God.—II. Cor. 6:16.

The following was suggested while we were building a new Smead closet for the accommodation of the men and boys of our different factories:

Just now great progress is being made, not only in the arts and sciences, but (may the Lord be praised) our physicians and our boards of health are also making great progress in warding off disease, especially the contagious and pestilential kinds. We have not only driven the yellow fever from our shores, but we are banishing it surely, and with pretty good speed, too, from the tropical cities that have recently come under the jurisdiction of the United States. We are also making progress here at home in warding off consumption and other like terrible maladies. It has rejoiced my heart of late to notice that, in different cities, they are not only passing ordinances, but *enforcing* them, against promiscuous spitting on the pavements and in street-cars. Physicians tell us that the saliva is one of the first things to be contaminated by disease. For instance, if a patient suffering with consumption is permitted to spit here and there on the floor, and if this spittle dries down and is then set flying in the air when the room is swept, the germs of consumption *may be* communicated to every person who breathes the air. It is largely on this account that promiscuous spitting is being stopped by law. The city of Detroit, largely through the influence of Mayor Pingree, obliges people to expectorate in the gutters instead of on the walks, where it dries down, and is then set floating through the air when the walks are swept.

When Mrs. Root and I were in Los Angeles (the City of the Angels, you know) we often remarked, when we came out early in the morning for breakfast, before many people were up, that Los Angeles had the most beautiful pavements of any city on the face of the earth—that is, so far as we knew. The pavements were made of a peculiar white or light-colored cement. Every morning they were washed off and scrubbed, until they were almost white enough to sit down on. Well, before noon these beautiful white walks in front of the finest stores would be literally bespattered with tobacco spittle. Yes, there were chunks of tobacco and *whole puddles* of the filth so deep that a woman would have to raise her skirts and pick her way, especially if she happened to have on nice shoes and no rubbers. In that beautiful climate, rubbers would be hardly *needed* if it were not for the filthy men. Now, I do not know whether this City of the Angels (?) has adopted a reform like that of Detroit or not; but I shouldn't wonder if it had; and if so, I should like to visit there again. Mr. Rambler, will you please tell us about it? Surely you go through the beautiful city where you live, occasionally, in your rambles, do you not? I see by the papers that in San Francisco they put a man in jail just because he *persisted* in spitting on the floors of the street-cars. Yes, and he was a *millionaire* to boot. May God be praised for this bit of news, that millionaires are expected to obey the laws—especially those pertaining to health, just the same as anybody else. Truly we are progressing.

Do some of you think I am cranky in my notions that so trifling a thing as spitting on the walks or floors of a room is going to bring fevers and consumption? Why, my friend, the very latest method of determining whether a patient has consumption or not is by sending some of his spittle to a competent physician. Whenever the lungs are affected with tuberculosis the spittle shows it at once. Furthermore, our dailies have just given us an account of several clerks who had, one after another, contracted quick consumption in a certain office where many book-keepers were employed. The doctors finally traced the cause to a certain book. A clerk who died with consumption had been in the habit of wetting his thumb in his mouth every time he turned the leaves of that ledger, until the book had become a veritable pest-house of disease, communicating the germs to several clerks who used it.

Now, boys, do not feel hurt or offended when I make a practical application of this subject. At this very minute, while I write, in our Smead closets where we have expended a great amount of money in making a closet absolutely free from smell (and that *might* be kept as neat and sweet, almost, as a dining-room) there are just piles of filth, the accumulation of the work of tobacco-users. If it were on the floor alone we would not say much about it; but you will all bear me out when I say that it is on the walls, on the shutters that afford privacy, on the pipes, and almost every thing else. Perhaps you ask me if I am not ashamed of myself for *letting* things get in such shape. Yes, I *am* ashamed; and I am not only going to ask God to forgive me, but I hope that, before these lines are in print, things will be in better condition; and then I want you to help me keep them so There are boxes of sawdust in every apartment of the closet; but the expectorators seem to have a dislike, some way, for spittoons. I provided them with the expectation of having the boxes of sawdust burned up when they became filthy. But I have neglected it for the reason I really disliked to ask any good clean boy, who does not use tobacco, to carry them down to the furnace and dump them in. And, by the way, I feel pretty sure there is not a man or boy in my employ who really wants to be called on to carry away the filth deposited by the tobacco-user. There may be *poor women* needing work who would do it, but I am not going to ask them to do it.

Now, boys, I do not usually ask much of you — that is, in the way of curtailing your liberty. Of late I have not said much about tobacco, though God knows I have felt a good deal. We have not had any smoking on our premises, because the insurance companies back us up in our objection to it. And now

the Ohio State Board of Health, I am sure, will bear us out in declaring we can not have tobacco spittle on the floors of our premises, even in *closets*. The one who *must* use tobacco in such quantities as to expectorate such a large amount of filth must provide himself with a spittoon, and empty it or burn it up when it gets to be unsightly. The health of all of us—in fact, your own health—depends upon it. I am not suspicious enough to believe that any one of you "laughs in his sleeve" when he thinks The A. I. Root Co. can not tell *who* does the spitting. We can easily tell by having a janitor employed to watch every one who goes into the closet and leaves it. In fact, this is done in many of our large hotels and in other places where the closets are largely frequented, and where it seems impossible otherwise to get rid of this sort of vandalism. I have not talked about turning anybody off, mind you, no matter how much tobacco he uses; but I *am* thinking of dismissing the men who are not only killing themselves but seem determined on killing their shopmates, or at least subjecting them to these things I have talked about in the fore part of this paper—that is, if there is no other way. Every doctor in the land will bear me out, even if that doctor does use tobacco himself to excess. We simply ask that you forbear spitting on the floors anywhere. If you have a cold, and *must* expectorate, just step outdoors. Doors are near you all. When you go to the closet, deposit the filth which is in your mouth in the places provided for the filth that nature throws off. Surely you can hold it in your mouth a minute or two at a time, under special circumstances. From personal acquaintance I am sure most of you are with me in my great desire to have all our rooms not only comfortable but pleasant-looking. We all enjoy seeing visitors go through our working-rooms, and we like to see them admire our arrangements. Well, I want to be able to take our visitors into our closets and show them what we have been doing *there* in the line of modern improvements. And, by the way, there is one thing I had almost forgotten. You can gauge the intelligence of a people almost anywhere on the face of the earth by visiting their closets. When our stalwart friend Ivar S. Young was over here from Norway some years ago to study up advanced bee culture and some other things he told me frankly that, in the way of closets and arrangements for personal comfort, America was far behind his own country.

Now, dear friends, I should like to know how many are with me in this new undertaking. From personal observation I judge that ninety out of every hundred of our people will say I am exactly right. Five more out of the ten remaining can *perhaps* be persuaded to agree with me. I am sure there are not *more* than five or six among our 150 or so employees who help *make* these filthy places, and who think it is the right and proper thing to use a closet in this way; and I am rather inclined to think that these five or six persons, after reading what I have said, or the greater part of them, will turn in and help us fight the good fight for health, decency, and every thing else that is good and pure. A great many times it is an excellent thing to have business contracts down in black and white; and with this end in view I am going to inclose a card in this envelop, to be considered when you get your pay Saturday night. If you feel like making any suggestions or additions to what I have said, I should be exceedingly glad to hear them. If you want to present the other side of the matter—that is, if there *is* any other side—I want to hear that too. If you can not do any thing more than to give me a little word of encouragement, please do that, even if it is nothing more than writing "O. K." on the card and signing your name to it. By this means I think we shall be able to manage without having any janitor at all; but if it is really necessary to go to the expense of hiring a janitor to do nothing but watch the closets, the question is, who is going to pay this janitor for his services? Surely not those who have been pained and offended by such places of filth for several years past. Will it be too hard to say that those who expectorate on the floor must pay the janitor? I hardly need tell you that this whole thing was suggested to me while we were building this new Smead closet. When I thought of the money it is going to cost, and the time and money that have been expended on it (we paid $100 to the patentee for the *right* to build the closet), I felt as if I *could not* have it share the fate of our old closet right near our office, that has been in use for the last nine years.

Let me explain to the readers of GLEANINGS that the Smead system is an arrangement whereby a current of hot air evaporates or dries out the moisture from the accumulation in the closet. This is secured by keeping up a draft of hot air by means of a little fire below, once a day or oftener. In our case we have in the base of our building a coil of pipe heated by means of exhaust steam from our factory. Just above these hot pipes is a floor of dry hot bricks supported on iron bars; then a tall chimney keeps a draft of hot air constantly passing over and under these bricks. The chimney makes draft enough so that, when one of the lids is open anywhere in the closet, the air sucks down through the floor, passing off up the chimney. In this way there is never any smell or foul gases. The chimney is tall enough to deliver the impurities so high up in the air overhead that they are carried off by the wind, and never make themselves known to anybody.

Now, while every home in the land may not be able to make use of an expensive apparatus such as I have described, every home in the land can have a neat, tidy, and pleasant closet. The use of dry earth, which is now so well understood, is many times the safest and easiest method of getting rid of unpleasant smells, and materials disagreeable to handle. Where there is a safe outlet for the sewage, without inconveniencing your neighbors, a water-closet is a very nice thing. I have described these so fully in former numbers that I need not go over the ground here.

Permit me to say that, in traveling about

the country, I have found many really beautiful closets, even in country homes—many that were carpeted, and had tasty and wholesome pictures on the walls; and in some there were scripture texts. Surely cleanliness *is* next to godliness; and when we begin to discover that cleanliness in the way I have mentioned has a direct bearing on this matter of health in warding off pestilences, is it not one of the bright and encouraging things of the present age that we are surely, though perhaps slowly, getting over this fashion of being heathenish and savage when it comes to looking after these matters that *must* be attended to every day of our lives?

In some of my writings heretofore I have alluded to the fact that we have occasionally, or once in a great while, been annoyed by obscene and impure scribbling in closets. At the present time I believe this is pretty much done away with. In this case it is likely the offender thought we had no means of telling who did it. Poor deluded soul! I presume it never occurred to him that the man or boy who *will* do a thing of this kind has it written almost on his forehead; because we know the boys who would *never* do a thing of this kind; and it is almost equally true that we know just what boy *might* be guilty of such work. The all-seeing eye of the great Father above knows all about it; and, besides this, good men and women of mature age can almost always judge pretty quickly who it is, when such work turns up.

Since the above was in type I notice by the papers that the city of Des Moines, Ia., has passed an ordinance making it a $10 fine to spit on the sidewalks; and our stenographer adds that the city of Marion, O., has also such an ordinance, and he thinks they were among the first to inaugurate this reform. If the different cities both north and south, and east and west, should get into a strife as to who should excel in clean pavements, how refreshing it would be!

MAGNETIC HEALING, VITAL SCIENCE, ETC.

Well, we are getting at the secret of Electropoise, Oxydonor, etc. We all have to confess it is a great mystery how such senseless traps could perform the cures and bring forth the astounding testimonials that they do; and ministers, editors, and some doctors, I am sorry to say, declare the thing *did* cure just because of those testimonials. But just now it begins to transpire that there are still *more* astonishing cures performed without any apparatus or any medicine; and the doctor does not have to see the patient at all, and in some cases he does not even have to know what the matter is. You pay him your five dollars, without saying a word, and he cures you without saying a word or even writing a letter. Several have inquired about the great Prof. Weltmer, of Nevada, Mo. By the way, Missouri seems to be specially prolific in this kind of healing. Prof. Weltmer not only heals every disease, but he takes *pupils* and teaches *them* the art, and he never fails to teach anybody to do it right, and the pupil never fails to cure any disease *whatever*. Am I getting it too strong? Well, here is what I copy from the Weltmer circular:

> The results of learning this profession will be that you can heal every known disease; can heal diseases that can not be healed by medicine or any other method, and you can earn from $10 to $50 per day. . . . . Every student can perform the *cures*, and when you can do this *you will get the business*.

You see, I thought of taking taking a course of lessons, so I wrote to the professor, asking him some questions. He sent me a nice long letter, "dictated by Prof. Kelly." He thought I would not know the letter was a *printed* one, but I did. He winds up the letter by saying:

> Our terms are cash in advance; no other proposition will be considered a moment.

Now, if there is anybody among our readers who still insists that there is either sense or science in the above, let him ask the family doctor, the minister, the schoolteacher, or anybody who is at all posted, what such claims mean; and notwithstanding these absurd statements, there are people who still insist that men are being cured by the wholesale by such professors. By the way, this Prof. Weltmer sends out quite a magazine. This magazine has pictures all through of high-toned patients he has cured, and of his beautiful large buildings that might grace a State university. If these pictures are photos of his real buildings he certainly has got a lot of money from somewhere to start his medical schools. I do not find any such institution quoted by either Dun or Bradstreet. Here is another:

> *Dear Bro. Root:*—Is Dr. Carson, who treats diseases by what he calls "vital science," a humbug or not? He keeps the temple of health, Carson City, Mo. I say "brother" Root, because I believe you to love your neighbor as yourself. SUBSCRIBER.

You see I am obliged to answer the above in print because our friend did not give his name. Well, in the first place I can not find any such place in Missouri as Carson City, so I could not hunt up any thing about this Carson. I think very likely that he, with his "temple of health," is another Weltmer. By the way, I forgot to mention that it costs only $5.00 a month to learn how to "doctor," so you can cure any disease that ever afflicted anybody on the face of the earth.

One moral we may gather from all the above is this: There *must* be a lot of people in the world who *think* they are sick. I believe they are honest in thinking so, otherwise they would not hand over five or ten dollars as readily as they do. Yes, they think they are sick. Then these professors get five or ten dollars for simply telling them there is not any thing the matter with them at all. It is only a notion they have got in their heads; and these people furnish the money for the Electropoise men and the health institutes to build up these great establishments, and to permit the "Prof." to revel in luxury and ease.

ROBBING SICK PEOPLE.

On page 813 I closed my talk about robbing sick people, with the following words in regard to giving cash in advance, no matter how responsible or reliable the person is who gives the order. Here is the story:

The boy who helps in the garden, and acts as messenger to go to and from the postoffice, was crippled at birth. His mother came to see me when he was quite a little fellow, and wanted to know if I could not find a place for a little unfortunate crippled boy. I did find him a place, and he has been with us until he is now almost a grown-up man. One of his legs is about two inches shorter than the other; but this does not seem to interfere with his riding the wheel, in the least, and in this way he makes himself quite useful. Some years ago an agent visited him and tried to get him to invest $35.00 in an artificial foot that would permit him to wear a common shoe, and walk as straight as anybody. When I found out about it I wrote the firm. They are called the Improved Extension Shoe Co., Cincinnati, O. They said they could fix him out all right; and if they did not succeed it was to cost him nothing; but they could not furnish the shoe, even to a well-known firm like our own, without cash in advance. I remonstrated, but they declared it was their invariable rule with everybody. But they promised fair and square to refund the money if they could not make the thing work. They were very courteous and polite until they got the money and sent the shoe. After that, they rather seemed to lose interest in the matter. There were delays and mistakes; and after we had invested quite a little more money (besides the $35.00) in sending him to Cleveland, to let one of their agents make exact measurements, there was a long delay, and then they said the agent had *lost* the dimensions that cost us so much trouble to get. Finally they got a shoe about right — at least he started off and walked with it pretty nearly as straight as anybody; but it hurt his foot from first to last so that it was entirely impossible for him to get along with it, or do any thing with it on. It seemed to crowd his whole weight down on to his toes. This machine that cost $35 00 seems to me ought not to cost more than about $3 50; but I was quite willing to pay this price provided the boy could be enabled to go around like other people. I explained to them that I furnished them money solely to do a boy a kindness, and wanted them to take the apparatus back at some price; but, like the Electropoise folks, a thing that cost $25.00 (or $35.00, if you choose) when you bought it, is not worth even 25 cents when you want to sell it back.

Now, then, my advice is, not to send cash in advance for any of these new and untried novelties — that is, unless the amount is so small you can well afford to lose it. If you yourself have no financial standing and rating in commercial reports, ask your merchant or grocer, or whoever you do business with, to manage the thing for you. Any firm which has a really meritorious article, will be glad to send it to any responsible business man; and you probably know that any farmer with even a *fairly* good credit back of him can get almost any agricultural implement, not to be paid for until he has tried it. This course of doing business will sift out the humbugs and swindles very speedily.

In regard to appliances for the deaf (see p. 812, Nov. 1st issue), I would advise you to consult your family physician; for as a rule he is informed on these matters, and knows all about ear-trumpets and similar aids for deaf people; and if the case is beyond his experience and skill he can probably tell you better where to go than anybody else. There is no end of frauds connected with doctoring the eyes and ears. Beware of them.

Mr. Root:—In your August 15th issue, page 623, under Health Notes, you quote from a letter from P. Hostetler, and further on make some comments. In this connection I wish to enter a "Plea for the Physician." I am a graduate of the Jefferson Medical College, having spent several of the best years of my life there, and am as familiar with the wards of the above-named hospital as I am with my own house. The part I most object to is where "the charge of $400 or $500 is a shame and a disgrace to the present age."

The Jefferson College hospital is kept up by endowments, and by the fees paid by students; and cases of unusual interest and of the proper kind are selected for operation before classes *free of charge*, except, perhaps, for their board of $1.00 per day. You don't suppose for an instant that any hospital could care for, board, and supply surgical dressings and medicines for the insignificant sum of $1.00 per day, and long keep open doors, unless there were some other source of revenue.

Speaking from my personal experience, $400 or $500 is not a cent too high for such capital operations; and the surgeon who is capable and fitted for their performance can not afford to do them for less. They are not common nor of every-day occurrence, even in the largest hospitals. I have been in practice since 1888; and after the first five years I have only ill health as a reward for my labors.

Idaho Falls, Idaho, Sept. 2. B. F. JONES, M. D.

My good friend, I stand, at least to some extent, corrected. You remember I expressed surprise that a surgical operation like the one mentioned could be performed for so small a sum of money. It did not occur to me that the circumstances were such as you mention. Of course, I am familiar with this kind of work since you mention it. The skillful physician or surgeon who saves a life that would have been lost, without question, but for his skill, certainly deserves a fair reward. What I had in mind, when I uttered the words you wrote, is charging enormous sums and not benefiting them after all. I do not know that surgeons very often deserve to be called "quacks;" yet cases have come under my notice where I think surgeons, who perhaps had skill, were guilty of criminal carelessness and *indifference* to human life. Our daily papers are giving, sometimes, reports of cases of this kind. What I had specially in mind is described in the following:

I read your articles in GLEANINGS about Electropoise. I have one for which I paid $25.00. I used it faithfully five months, but received no benefit. It may help some folks by stopping their filling their systems with medicine and giving nature a chance to work. What I would stop is the specialists. They put out glowing advertisements, and claim they can do wonders, and jew a person out of $500 or $1000 before they do any thing for them, and then leave them worse off than when they began. I paid one noted specialist $300 in advance to cure me, without specifying any particular time. He sent me medicine for a year, and at the end of that time I was in bed suffering extremely; and instead of medicine he sent a let-

ter asking $200 to treat me another year. He *reduced the price*, seeing that I was an old patient. I would gladly give his name and place of business, but may be I have no right to do so, as he has license to practice in Ohio, and runs a large institute on the money he robs the sick of. If any thing is to be cried down, I say let it be those quacks who charge a large price in advance. My husband has paid out many hundred dollars on false promises to get me cured, and I am no better off, and, as a last resort, we are trying a warm climate, and, with God's help, it may be successful. If you desire to print any portion of this, and any invalid wishes to know about this particular institute, I will tell him willingly; but I do not care to have my name published. MRS. O. A. D.

San Diego, Calif., April 6.

DOCTORING WITHOUT MEDICINE; CAUSE AND CURE OF RHEUMATISM—AT LEAST ONE KIND OF THAT DISEASE.

Friend Root, as you are always doing something to benefit your fellow-men I have a little experience to relate to you which you in turn can give to your readers *free*, as I have no patent on it. I have been afflicted with acute and sciatic rheumatism for over 25 years; but for the past year I have been entirely free from it. The year previous to the past one I was laid up entirely. I had tried every thing — patent medicines, electricity, and prescriptions from several doctors, but they were all failures. For several reasons I came to the conclusion it was all caused by the *sweets* I was taking into my system. In September, 1898, I discarded sweets entirely, and in three months my rheumatism was completely gone. About a month ago I was extracting honey, and I ate quite freely of it, for one or two days, when my old symptoms of rheumatism returned, so I *know* the rheumatism is caused by the uric acid which comes from eating sweets. All doctors agree that sweets turn to uric acid, and uric acid causes rheumatism. Some 30 years ago I always had this complaint while making maple sugar; but as soon as "sugaring" was over my rheumatic trouble was gone.

Berlin, Wis., Oct. 30. E. C. EAGLEFIELD.

My good friend, you have struck on one of the great points in the Salisbury treatment. Where one's digestive apparatus gets started into acid fermentation, sugar, more than any other one article of diet, feeds the malady. It is just like putting something sweet into vinegar. The beer-plant, as you may know, will grow and thrive so long as it has the least bit of sweet of any kind added to the water in which it is growing. Now, the Salisbury treatment cuts off not only the sugar but the starch also; and starch is easily converted into sugar by chemical means or by the digestive apparatus; but in my own case, and I think that of most people, sugar is more apt to feed a sour stomach than starch or starchy foods. Among all vegetable foods, dry bread or zwieback is perhaps nearest to meat; but a beefsteak diet contains absolutely no sugar or starch, and it is, accordingly, the only food—that is, the lean-meat diet is almost the only diet known—that contains neither starch nor sugar, and is, therefore, calculated to *starve out* this fermentation in the bowels. I am sorry to say, however, that not *all* kinds of rheumatism yield to this treatment; but a great many forms of rheumatism, as well as ever so many other distressing results of indigestion, may be remedied by cutting off all sweets. I have known cases where just omitting the sugar in coffee has put a stop to daily headaches. I am glad to know the world is finally catching on to this most important factor in diet. Now, please remember I do not condemn the use of a reasonable amount of sugar for *everybody*. Where sugar is perfectly assimilated and digested, as it is, perhaps, with most healthy people, a proper amount with the meals gives strength; but a good many times, eating less sugar will stop headaches and other like results of indigestion.

While speaking of rheumatism, permit me to say here that when I was in Fostoria recently, my nephew, Geo. M. Gray, called my attention to an important case. A man who had for years hobbled about on crutches, badly crippled up with rheumatism, had a son who is now conducting a bicycle-repair shop in Fostoria. Well, the old gentleman got an idea that, if he could get started on a wheel, he could get about and greatly relieve himself from the fatigue occasioned by standing on his crippled legs. Of course, the boy took a great deal of pains to teach his father how to run a wheel, and they two together succeeded admirably. Now, can you guess the sequel? The wheel-riding gave the old gentleman outdoor exercise, a good appetite, and his rheumatism kept getting better and better, until at the present time he goes about walking erect, without any crutches or even a cane. May God be praised for these lessons that are all round about us, teaching us how to "doctor" ourselves "without medicine."

GOOD FOR THE "ROOTS."

I have not yet been able to find out just what relation, if any, Sec. Root is to the Roots here in Medina; but the Root Genealogy, which is a pretty good-sized book, did, at the time it was printed, connect pretty nearly all the Roots in the United States, if not all. But what pleases me just now is the following, which we also clip from the *Advance*:

The new regiments sent to Manila had no chaplains; but Secretary Root has ordered all the available chaplains in the army to the Philippines, ten in all.

The above is certainly encouraging, for it is only a little while since we were told that the beer-canteen was to have a free swing in our new possessions, in the army, but that all the *chaplains* were to be *dispensed* with. I was wondering whether the recent objection to chaplains had not arisen because they would naturally make such a vigorous protest against the introduction of beer. Well, Sec. Root has reinstalled the chaplains; and may we not hope that he will soon use his influence to have the law enforced regarding the canteen business?

SHALL WE HOLD A JOURNAL OR PERIODICAL RESPONSIBLE FOR THE CHARACTER OF ITS ADVERTISEMENTS?

Thank God, there are several periodicals besides GLEANINGS that think a home paper ought to exclude advertisements from the whisky men. We clip the following from the Chicago *Advance*:

The descriptive sub-title of *Harper's Weekly* is, "A Journal of Civilization," and it is a low grade of civilization, if we are to judge by the advertisements of liquor-dealers which appear in that journal. One advertisement in *Harper's Weekly* furnished by the brewers of "the beer which made Milwaukee famous," declares that since Manila was occupied by the Americans they have shipped to that city two hundred and nineteen carloads of beer, making in all a train a mile

and a half long. And this is the liquid "civilization" advertised. for a consideration, in *Harper's Weekly*, yes, and *Harper's Monthly*. The advertisement states that, "wherever civilization has gone, S— beer has followed" So much the worse for civilization; for since that much-advertised beer began to arrive in Manila the saloons have increased from a few to more than four hundred and thirty.

A LITTLE CIRCUMSTANCE (?) AT THE HOME OF THE HONEY-BEES.

On the day when the first issue of GLEANINGS came from the press (27 years ago), and was handed over for the inspection and approval of your old friend A. I. Root — well, before night of the same day a little blue-eyed stranger came into the home of the Root family. She was afterward called "Blue Eyes," as some of you may remember. By the way, all the fault I have yet heard concerning the new A B C book was because the picture of Novice and Blue Eyes was left out. Well, the picture of Novice then, as he held Blue Eyes in his lap, does not look very much as he does now, for he is a white haired and white-bearded old man now—at least he will be 60 on the 9th of next month (December); and Blue Eyes is a grown-up woman with a home of her own, and — oh dear me! she has a blue-eyed *boy* of *her own*, born Nov. 2. And even if that boy is not quite five weeks old yet, I presume she would consider his picture of as much consequence, or more, than even that of herself or anybody else, for that matter. I believe it is universally conceded there can be no real fully developed prosperous colony of *bees* without daily accessions of *young* bees; and in a like manner it seems as though the Root Co., in order to stand firm and solid through the coming ages, needs in a like manner occasional reinforcements of young blood. Oh! I must not *forget* to add that the father of this blue-eyed boy, Mr. A. L. Boyden, Secretary of The A. I. Root Co., is fast getting to be one of the *principal* business managers. He has known all about bees from his childhood, and it is *my* impression that he now knows more about some departments of our growing business than even John and Ernest.—A. I. R.

THE MAN WHO DRINKS.

The following is credited to the Memphis *Commercial Appeal*. We say a hearty amen to it, and pass it along:

The business world recognizes that no man who drinks is as good as he would be if he never drank. Time was when in certain lines of business it was considered necessary to drink. Quite the contrary is the case now. Even saloon-men prefer barkeepers who do not drink the liquids they sell All the fairy tales about the great things people do when under the influence of liquor have been exploded. The orator who must be intoxicated in order to make a speech is no longer here, and he has never been here. The lawyer who can not plead a case or cite an authority without spending the night before in a barroom has gone to visit the pale glimpses of the moon, and he has always been gone. The writer who produces a great poem or a great essay while maudlin was removed from this planet before the command "Let there be light!" was given. The book-keeper, clerk, mechanic, salesman, artisan, young or old, is not at his best while under the influence of liquor, and he is not as valuable to himself, his employer, or society. In the race of life the temperate man has the best of it; the drinking man is handicapped. The sober man is always an improvement on the drunken man.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]	[Price without postage.
8	Bible, good print, neatly bound 20
10	Bunyan's Pilgrim's Progress** 50
20	Illustrated Pilgrim's Progress**..... 75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet 50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

	Christian's Secret of a Happy Life,** 50c; cloth 1 00
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* 10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper..... 5
2	Same, board covers..... 20
5	Same, words and music, small type, board cov. 45
10	Same, words and music, board covers..... 75
3	New Testament in pretty flexible covers..... 05
5	New Testament, new version, paper covers..... 10
5	Robinson Crusoe, paper cover..... 10
4	Stepping Heavenward**..... 18
15	Story of the Bible**.....1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**.....1 25
5	Tobacco Manual**..... 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth.....1 10
	Advanced Bee Culture, by W. Z. Hutchinson ... 50
3	Amateur Bee-keeper, by J. W. Rouse..... 22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §.....2 36
21	Same, Vol. II., §.....2 79
	Same, Vols. I. and II., postpaid 5 25
10	Bees and Honey, by T. G. Newman..... 90
10	Cook's New Manual, cloth.....1 15
5	Doolittle on Queen-rearing 95
2	Dzierzon Theory..... 10
3	Foul Brood; Its Natural History and Rational Treatment 22
1	Honey as Food and Medicine 05
15	Langstroth Revised, by Chas. Dadant & Son.....1 10
15	Quinby's New Bee-keeping.....1 40
	Thirty Years Among the Bees, by H. Alley..... 50
	Bee-keeping for Profit, by Dr. G. L. Tinker..... 25
5	The Honey-bee, by Thos. William Cowan..... 95
	British Bee-keeper's Guide-book, by Thomas William Cowan, England § 40
3	Merrybanks and His Neighbor, by A. I. Root... 15
4	Winter Problem in Bee-keeping, by Pierce..... 46
	Bienenzucht und Honiggewinnung..... 50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5	An Egg farm, Stoddard** 40
5	A B C of Carp Culture, by Geo. Finley..... 25
5	A B C of Strawberry Culture,** by T. B. Terry.. 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry**..... 35
This is T. B. Terry's first and most masterly work.
| Barn Plans and Out-buildings*.....1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.
15 | Draining for Profit and Health, Warring.....1 35
10 | Fuller's Grape Culturist**.....1 15
8 | Domestic Economy, by I. H. Mayer, M. D.** ... 30
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys*.....1 15
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.
| Farming with Green Manures, postpaid..... 90
7 | Farm, Gardening, and Seed-growing** 90
| Fungi and Fungicides, paper, 50c; cloth.....1 00
12 | Gardening for Pleasure, Henderson*.....1 35
12 | Gardening for Profit**.....1 35
8 | Gardening for Young and Old, Harris**.....1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.
3 | Grasses and Clovers, with Notes on Forage Plants 20
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.
10 | Greenhouse construction, by Prof. Taft**.....1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay**.....1 35
5 | Garden and Farm Topics, Henderson**..... 60
| Gray's School and Field Book of Botany.....1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20
5 | Gregory on Onions, paper*..... 20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05
10 | Household Conveniences.....1 40
2 | How to Propagate and Grow Fruit, Green*..... 15
10 | How to Get Well and Keep Well..... 90
An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook..... 10
10 | Irrigation for the Farm, Garden, and Orchard*1 10
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes..... 75
10 | Success in Market-Gardening* 90
This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.
3 | Maple Sugar and the Sugar-bush**..... 32
4 | Peabody's Webster's Dictionary..... 10
Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers..... 30
6 | The same in cloth covers..... 65
| Nut Culturist, postpaid.....1 50
3 | Onions for Profit**..... 40
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.
| Our Farming, by T. B. Terry**..... 1 50
In which he tells "how we have made a run-down farm bring both profit and pleasure."
This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.
We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.**..... 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10
By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.
2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown..... 08
This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases..... 10
5 | Tile Drainage, by W. I. Chamberlain..... 35
Fully illustrated, containing every thing of importance clear up to the present date.
The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.
3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer**..... 20
3 | Vegetables in the Open Air..... 20
This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.
3 | Winter Care of Horses and Cattle..... 25
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.
3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

Special Notices by A. I. Root.

PUTTY-BULB.

For setting glass for greenhouses; also used as an insect-powder gun. The price will be 25 cts. instead of 15 as formerly. By mail, 5 cts. more.

NEST-EGGS OF POLISHED WOOD.

These are considerably cheaper; in fact, we can quote them 10 for 10 cts.; 100, 75 cts. If wanted by mail, only 1½ cts. each additional for postage.

ADVANCE IN PRICE OF COLD-FRAME OR HOT-BED SASH.

The present price will be, one sash in the flat, for sample, without glass, 85 cts.; five in the flat, 80 cts. each; 10 in the flat, 75 cts. each. Glass, 8x10, just right for the above, per box of 90 lights, $3.00.

ADVANCE IN THE PRICE OF PEAS.

Both Alaska and Premium Gem will be, instead of the catalog price, ½ pint, 5 cts.; quart, 15 cts.; peck, $1.00; bushel, $3 50. American Wonder will be: ½ pint, 8 cts.; quart, 20 cts.; peck, $1.25; bushel, $4.50. All other kinds will be as in the catalog.

WAX BEANS, SCARCE AND HIGH-PRICED.

You will find almost all kinds of wax beans and snap beans of any sort quoted in the catalogs at $1.50 to $6.00 a bushel; and a good many times when you send an order the seedsman says he can not send any, even at that price. I know, because I have been trying to buy them for our Florida customers. But we have just now purchased 11 bushels of Davis wax beans directly from Eugene Davis, the originator. We can furnish these, while they last, for only $4.25 per bushel. For smaller quantities, see our catalog. We have also received from friend Davis two bushels of red kidney beans. Price $3 00 per bushel.

GRAND RAPIDS LETTUCE SEED.

We have just purchased from the grower 25 lbs. of extra nice new seed. Price will be, ounce, 5 cts.; 1 lb., 50 cts.; 5 lbs., $2.00.

Since the above lot was purchased, we have had an opportunity of testing the seed, and know that almost every seed will grow. As we go to press it is just putting out its second leaves, and we believe it is about as true a strain of Grand Rapids as any thing we have ever sold.

Now is the time for starting lettuce to be grown under glass. A few days ago, on one of my recent wheelrides near Berea, Cuyahoga Co., O., I noticed three fair-sized greenhouses side by side, and they were all used entirely for growing Grand Rapids lettuce. The proprietor, pointing to the beautiful crop, said to me, with commendable pride, "This has all been grown without a bit of heat except what came from the sun. Look! there is not a green fly; and where you use sun heat and nothing else you won't have any." I mention this for the benefit of those who live far enough south so they can grow a crop almost (if not entirely) without the aid of either flue, steam, or hot water.

LEE'S FAVORITE POTATO.

Since prices were given in table in our issue for Nov. 1, we have purchased of a neighbor a lot of Lee's Favorite. Our experiment station pronounces these, while not quite as early as the Early Ohio, very much more prolific, and No. 9 in quality, Snowflake being No. 10. In consequence of having bought them low we can make the price on these, peck, 25 cts; ½ bushel, 40 cts.; bushel, 75 cts; barrel, $2.00. This low price is only for immediate orders. The stock will not probably hold out very long at this price.

MAULE'S COMMERCIAL.

This potato is remarkable for its great yield and large size. T. B Terry, of Hudson, Ohio, on his first attempt, grew something like two bushels from one potato; and these two bushels were, some of them, just immense. I paid $10.00 for a single potato just two years ago, and from that one potato harvested this season 40 bushels. Of course, I had the greenhouse to aid me the first winter; and among the 40 bushels there were quite a few that weighed over 2 lbs. each. It is real fun to see these great potatoes puff up the ground along in the fall when they commence all at once to expand and swell out. Had it not been for the severe drouth I think my crop might have been doubled. If this potato were as handsome in shape as Carman No. 3 I should consider my 40 bushels worth $10.00 each. Perhaps in different soil the shape might be better. So far as my experience goes they are not only great, but awkward-shaped, and have, perhaps, the deepest eyes of any potato we grow. Very few reports have come in from the seed we sold last spring, so far; but here is one of them that indicates they are great yielders in other localities also:

I raised 2½ bushels from the 2 lbs. of Commercial which I got of you last spring. MONT WYRICK.
Cascade, Iowa, Oct. 26.

SEED POTATOES AS PREMIUMS.

Any one sending $1.00 for GLEANINGS, and asking for no other premium, may have 25 cents' worth of potatoes. And any one who is a subscriber, and who sends us $1.00 and one new name may have 50 cents' worth of potatoes; but if the potatoes are wanted by mail the subscriber must pay postage. Please notice we give potatoes as premiums, but we can not afford to give *postage stamps*.

The most important novelties in potatoes for 1900 are the two new ones, Commercial and Russet. Fifty cents' worth of these would be one peck. Of course, these would have to go by express unless you are ordering other goods, when the potatoes could go with them by freight. But for the benefit of those who want just enough by mail to test them, or to get a start, we will send ½ lb. by mail *postpaid* of either of the above to any subscriber, old or new, who pays for GLEANINGS one year in advance; or we will send ½ lb. postpaid by mail to any subscriber who sends $1 00 for arrearage on GLEANINGS, providing he mentions it when sending the money or making the order. Of course, we do not send potatoes to anybody unless he says he wants to have them. Now, then, friends, everybody who takes GLEANINGS can have enough potatoes to get a start, free of charge, of either of the above two kinds. Please do not ask us to send something else on these terms, because we are going to have a great lot of these done up in ½-lb. packages ready to mail; but we shall not have the other kinds thus put up, a large lot at a time.

ORDERING POTATOES NOW.

Of course, it is risky business shipping potatoes anywhere in December—that is, if you want as many as a barrel or more; but if you wish to send in your orders now to secure them before we run out of certain kinds, we will set them aside for you, and guarantee their safe keeping till next April. Then we will guarantee safe delivery from freezing. We mention this because many kinds are sold out already. See new table. We can, however, send half a bushel or a smaller quantity any time during winter by taking extra pains in packing. Potatoes by mail go anywhere any day in the year, without any danger of freezing—at least we have never had any losses, that we remember, in sending by mail all winter long.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
Red Bliss Triumph	$ 18	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee	18	40	25	40	75	1 25	3 00
Lee's Favorite	15	35	20	25	40	75	2 00
E. Thoro'bred, Maule's	18	40	20	35	60	1 00	2 50
Early Ohio	18	40	25	40	75	1 25	3 00
Burpee's Extra Early	18	40	25	40	75	1 25	3 00
Freeman	18	40	25	40	75	1 25	3 00
New Queen	18	40	20	35	60	1 00	2 50
Maule's Commercial	30	75	30	50	85	1 50	3 50
Mill's Prize	15	35	20	25	40	75	2 00
Carman No. 1	18	40	20	35	60	1 00	2 50
Carman No. 3	18	40	20	35	60	1 00	2 50
Sir Walter Raleigh	18	40	20	35	60	1 00	2 50
New Russet	30	75	30	50	85	1 50	3 50
Manum's Enormous	18	40	25	40	75	1 25	3 00
New Craig	18	40	25	40	75	1 25	3 00

Seconds of any of the above will be half price.

We have sold out the seconds of the following kinds of potatoes: Triumph, Bovee, Carman No. 3, Lee's Favorite, and Russet.

Please notice there are no seconds at half price in potatoes postpaid by mail. The principal part of the price of potatoes by mail is for postage stamps; and Uncle Samuel does not have any second quality of postage stamps that he sells at half price. Another thing, when you go to the expense of paying postage on potatoes, you will naturally be supposed to want the very best and nicest that can be picked out.